Communication Skills for MRCPCH: Practical Scenarios and Tips

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First Edition

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All proceeds from this book go to charity

Dedication

To the cherished memory of my mother,
Mrs. Nadia Alkabawy,
whose love transcends time and whose presence forever lives within me.

To my father,
for his quiet strength and unwavering support.

To my beloved sons,
Omar Yaser and Ahmed Yaser,
my light, my purpose, and my enduring hope.

To my esteemed mentors,
Professor Abdulmoein Al Agha and **Professor Majeed Jawad.**

To my colleagues and friends in the Emergency Department,
especially **Dr. Shafiqa Al-Shareef, Dr. Manal Al-Helwani, Dr. Abdullah Sabgol,**
and **Dr. Fahd Mansouri.**

To my dear friend,
Dr. Rania El-Sayed.

To **Dr. Alaa Galal,** for her essential role in bringing this work to life.

This book carries a part of each of you.

To TamTam (طمطم),
my beloved cat,
my silent companion and source of comfort
through every late night and every hard day.

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INTRODUCTION

■ MRCPCH Communication Skills Station – Quick Guide

What is the Communication Station?

One of the core stations in the MRCPCH Clinical Exam. It tests your ability to explain, listen, and show empathy in a professional setting. Scenarios may involve explaining a diagnosis, obtaining consent, breaking bad news, or communicating with colleagues.

■■ Duration & Timing

- Total: 9 minutes inside the station.
- Before entering: 2 minutes outside to read the scenario.
- At 6 minutes: examiner will knock to remind you of the 3 minutes left.
- Use the last 3 minutes to summarise, check understanding, and close.

What is Expected from You

You are not being tested on full medical knowledge. You are expected to have a brief, safe level of knowledge about the topic. The main assessment is on how you communicate that knowledge.

■■ Clarity	**Explain in simple, structured language, avoiding jargon.**
■ Listening	Acknowledge ideas, concerns, and expectations.
■ Empathy	Respond appropriately to emotions (fear, anger, sadness).
■ Rapport	Be polite, professional, and approachable.
■ Structure	Logical flow: introduction → explanation → summary.
■■■■■ Shared Decision Mal	iInngvolve the other person, don’t dictate.

Advice for Success

- ■ Read the stem carefully before entering.
- ■ Start with rapport and introduce yourself.
- ■ Use frameworks like ICE or SPIKES.
- ■ Avoid jargon, keep it clear.
- ■ Check understanding regularly.
- ■ Show empathy and acknowledge feelings.
- ■ Manage your time well – respond to the 6-min knock.
- ■ Conclude clearly with summary and safety-netting.

Key Point

The examiner is asking: **‘Can this candidate explain and listen well enough to be safe and trusted as a pediatric doctor?’**

■ Breaking Bad News – Quick Guide

Philosophy

The goal is not just to give information, but to support the family through a difficult moment.

■ **Empathy**	Show genuine understanding of the parent’s feelings. *‘I can see this is very upsetting for you.’*
■ Help & Hope	Offer realistic hope (treatment, support, follow-up), without giving false reassurance.
■ Acknowledgement	Recognise the emotion, silence, or tears. Allow space for parents to cry or express anger.
■ Advocacy	Stand by the child and family. *‘We will work together to give your child the best possible care.’*
■ Responding to Emotion	Do not rush into facts; first name and validate the feeling. *‘It’s natural to feel overwhelmed.’*
■ ■ Information Delivery	Use short chunks of information, avoid jargon, and check understanding before moving on.

Practical Framework – SPIKES

- **S** – Setting (private, quiet, no interruptions)
- **P** – Perception (what do parents already know?)
- **I** – Invitation (how much detail do they want now?)
- **K** – Knowledge (clear, simple, no jargon)
- **E** – Empathy (pause, listen, respond to emotions)
- **S** – Strategy & Summary (next steps, support, safety-netting)

Golden Tip

Parents often remember **how you made them feel** more than the exact words you used.

Dr Ghada

■ Duty of Candour – Quick Guide

Philosophy

Duty of Candour is a **legal and professional duty** in the NHS (and GMC guidance). It means being **open, honest, and transparent** when something goes wrong in a patient's care.

■ **Explain Honestly**	Be open about what happened and use simple, clear language.
■ Apology	Offer a sincere apology on behalf of the team.
■■ Treatment & Safety	Explain what will be done for the child now to ensure safety.
■ Prevention	Explain what measures will be taken to prevent recurrence: • Raise the incident to hospital governance/quality board. • Document honestly in the patient's file. • Arrange an investigation/review meeting. • Quality & safety board review. • Team debrief (system learning, not blame). • Strengthen safeguards (double-checking, e-prescribing).
■ Complaints & Voice	Inform about complaint processes and how parents' voices will be heard.

Golden Tip

Duty of Candour is about balancing **honesty + empathy + professionalism**, giving parents confidence that their child is safe and lessons will be learned.

DR. Ghada

■ Consent in MRCPCH – Quick Guide

Philosophy

In MRCPCH, you are expected to take **focused informed consent**. Consent is not just a signature — it is a **process of communication and understanding**. The candidate must combine **clear explanation, empathy, and respect** with professional communication skills.

■ **Prior Knowledge**	Ask what the parent already knows. Explore Ideas, Concerns, and Expectations (ICE).
■ Focused Introduction	Briefly introduce yourself and the purpose of the discussion.
■ Indication (Why)	Explain clearly why the procedure is needed.
■ Address Insecurities	Explore and acknowledge fears, doubts, and worries. Respond with empathy.
■ Alternatives	Present reasonable alternative options, including doing nothing if relevant.
■■ Explain Procedure	Describe how it will be done and who will perform it. Use diagrams or demonstrations if possible.
■■ Risks & Side Effects	Outline common, important, and serious risks in simple language. Avoid jargon.
■ Check Understanding & Approval	Ask the parent to summarise in their own words. Confirm they feel safe and informed. Gain verbal approval for consent.

Practical Tips

- ■ Keep it focused – don't overwhelm with minor details.
- ■ Always use empathy when addressing fears.
- ■ Use drawings, charts, or demos if appropriate.
- ■ Document the discussion in the notes.
- ■ Remember: Consent is about **shared decision-making**, not persuasion.

Golden Tip

Examiners want to see that you can balance **clarity + empathy + safety-netting** while ensuring the parent feels fully informed and respected.

■ Colleague Communication – Quick Guide

Philosophy

When the scenario involves a **colleague** (nurse, junior doctor, registrar, allied health professional):
• The interaction should be **partnership-based**, not hierarchical.
• Show **teamwork, friendliness, and respect** while addressing the issue.
• Aim to **support and guide** rather than blame.
• Always remain within the **ethical framework** and professional standards.

■ **Partnership Approach**	Emphasise collaboration: 'We're in this together for the patient.' Show respect for their role and experience.
■ Teamwork & Empathy	Acknowledge their workload and stress. Use friendly but professional tone.
■ Active Listening	Explore their Ideas, Concerns, and Expectations (ICE). Clarify their point of view before giving advice.
■ Advice with Respect	Offer guidance as suggestions, not orders. Reference guidelines and hospital policies to strengthen your advice.
■■ Consequences (No Threats	Explain patient safety risks or GMC expectations in a non-offensive, non-threatening way.

Techniques to Use

■ Active listening – let them explain their reasoning.
■ Acknowledgement – show you understand their pressures.
■ Guideline-based discussion – anchor advice in policies, not personal criticism.
■ Shared decision-making – 'How can we make this work together?'
■ Supportive close – 'I know you're doing your best, let's keep each other updated.'

Golden Tip

In colleague stations, the examiner wants to see if you can balance **professionalism + empathy + assertiveness**, ensuring patient safety while preserving a positive working relationship.

■ Teenager Communication, HEEADSSS & Transition – Quick Guide

Philosophy

Adolescents require a **different communication approach** than children or adults. The doctor must balance **respect, confidentiality, and empathy**, while still ensuring safety. The **HEEADSSS framework** provides a structured way to explore psychosocial issues.

■ **Home**	Who do you live with? Relationships at home? Safe environment?
■ Education/Employment	School attendance, performance, bullying, future plans.
■ Eating	Nutrition, weight concerns, eating disorders.
■ Activities	Hobbies, sports, friends, online activities.
■ Drugs/Alcohol/Smoking	Use of tobacco, alcohol, substances.
❤■ Sexuality	Relationships, sexual activity, contraception, safe practices.
■ Safety	Exposure to violence, risky behaviour, self-harm.
■ Mental Health	Mood, anxiety, self-esteem, suicidal thoughts.

Teenager Communication Tips

■ Confidentiality – reassure but explain limits (safeguarding).
■ Respect – treat them as young adults, not children.
■ Empathy – acknowledge their struggles (peer pressure, identity).
■ Open questions – encourage conversation, avoid judgement.
■ Privacy – where possible, speak to the teen alone.

■ Transition to Adult Services – Quick Guide

Philosophy

Transition is not just a **transfer of care**, but a **planned process** helping the young person move from child- to adult-centred healthcare. Aim: ensure **continuity, independence, and empowerment**.

■ **Start Early**	Begin around 12–14 years old, with gradual preparation.
■ Individualised Plan	Tailored to the young person’s medical and psychosocial needs.
■ Education & Empowerment	Teach self-management skills, medication responsibility, appointment keeping.
■ Joint Clinics	Paediatric + adult teams together for handover.
■ Family Involvement	Balance parent support with young person’s independence.
■■ Safety Netting	Provide clear contacts during transition to avoid drop-out.

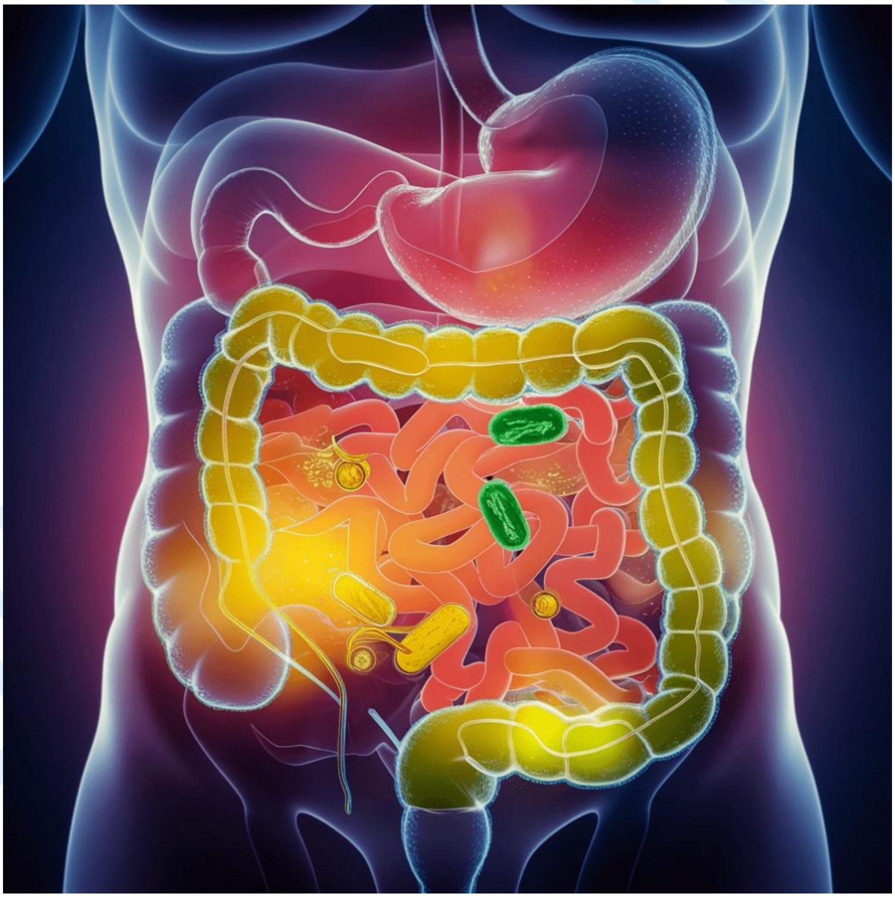
Practical Tips

- Use age-appropriate language and involve the teenager in decisions.
- Encourage self-advocacy: ‘Do you want to explain your condition in your own words?’
- Provide written information and transition checklists.
- Highlight support services (school counsellors, community nurses, youth groups).

Golden Tip

Show that you respect the teenager’s voice while safeguarding their health — **autonomy with protection**.

GASTROENTEROLOGY



DR. Ghada Refaat

DR. Refaat

Functional abdominal pain

Background: Farida, a 9-year-old girl, has been experiencing recurrent abdominal pain and has been diagnosed with functional abdominal pain. Her mother, Mrs. Hasnaa, is frustrated because Farida has been missing several school days due to this condition.

Role: You are Dr. Mostafa, an ST4 registrar
Task: Your role is to have a compassionate and informative discussion with Mrs. Hasnaa. You will explain the nature of functional abdominal pain, reassure her, address her concerns, and provide clear guidance on how to help Farida manage her symptoms effectively.

Dr Mostafa:
Mrs Hasnaa would you tell me what's your concern regarding Farida?

Mrs Hasnaa:
Farida has this tummy aches for several times, I offered her lots of medications, and I did everything to improve this ache. No one gave me an answer why she is having this tummy aches. I even gave her peppermint oil; I gave her probiotics bust still she is having the same pain. Now she got these attacks twice weekly, sometimes she misses her school.

Dr Mostafa:
I'm truly sorry to hear that, Mrs. Hasnaa. I can only imagine how difficult it must be to see your daughter in pain and feel helpless. I want to assure you that we are here to help. After thoroughly examining Farida, we believe she is experiencing something known as Functional Abdominal Pain. Have you ever heard of this condition before?

Mrs Hasnaa:
No Dr. what is this?

Dr Mostafa:
Functional abdominal pain is a type of recurrent pain that typically occurs in children, often happening around four times a month for at least two months. The term **"functional"** means that while the pain is real, it is not caused by any underlying disease, infection, or inflammation. In other words, the pain does not result from any visible problem in her stomach or intestines. It's a condition where the nerves in her gut become overly sensitive.

Mrs Hasnaa:
But Dr nothing happens without reason and why only my daughter has this? She has real pain, do you think she is malingering?

Dr Mostafa:
I completely understand your feelings, Mrs. Hasnaa. Please know that I believe you — Farida's pain is very real, and it is not something she is making up. Functional abdominal

pain happens because the **nerves in the digestive system become overly sensitive**, which can make normal sensations feel like severe pain.
it could be due to irregular bowel contractions (**irritable bowel**).
sometimes caused by **imbalance between microbiomes** in gut.
it could also run in families, so they thought it could have some **gene predisposition**.
but This is a recognized medical condition, and it is actually quite common among children.

Mrs. Hasnaa:
But why does she get it so often? Is it something I'm feeding her?

Dr. Mostafa:
In most cases, it's not just about food. Functional abdominal pain can be triggered by several factors, including stress or anxiety, irregular eating habits, and even mild infections she might have had in the past. School can sometimes be a source of stress, even if she doesn't talk about it.

Mrs. Hasnaa:
I did notice that she seems more anxious about school lately.

Dr. Mostafa:
That's a very important observation. Sometimes, when children are anxious or stressed, their bodies respond physically. And because Farida's gut is more sensitive, she feels it as pain.

Mrs. Hasnaa:
But she's missing so many school days. I'm worried it will affect her studies.

Dr. Mostafa:
Absolutely, and that's why we want to help her manage this better. Our goal is to reduce her pain episodes, but also to teach her how to cope with them when they happen. This way, she doesn't miss out on school or other activities.

Mrs Hasnaa:
Ok Dr how you will manage her?

Dr Mostafa:
Our approach will be a combination of support, education, and therapy.

First, we will refer Farida to Cognitive Behavioral Therapy (CBT), which is a type of talk therapy. The therapist will help her understand the nature of her pain, teach her coping strategies, and guide her on how to distract her mind from the pain and focus on other activities.

Second, we may also suggest **relaxation techniques**, such as meditation therapy, which can help her stay calm and reduce stress. This is important because stress can sometimes make the pain worse.

Third, we will continue to **monitor** her closely, keep **diary** for the symptoms what make it better and what make it worse or trigger it, and if needed, we may explore other **supportive treatments** . Our main goal is to help Farida manage her pain effectively and prevent it from disrupting her life.

Also we need to liase with the school after your permission to decrease any stress she could experience from the school.

Mrs Hasnaa:
Can I give her analgesia as well and what about the probiotics and peppermint oil?

Dr Mostafa:
Excellent questions, Mrs. Hasnaa. Regarding **analgesics (painkillers)**, we usually recommend using them cautiously. Mild pain relievers like **paracetamol (acetaminophen)** can be used occasionally, but it is best to avoid frequent use of **NSAIDs like ibuprofen**, as they can sometimes irritate the stomach and make things worse. But try not to give 2 days in a row.

As for probiotics, however there is no clear evidence to cure the pain, they can be helpful for some children while, **Peppermint oil** has antispasmodic properties that can help relieve abdominal pain. However, its use in children is subject to age restrictions. For younger children, alternatives like **peppermint tea** may offer some relief, though evidence supporting its efficacy is limited.

Mrs. Hasnaa:
Thank you, Doctor. That makes sense now. I just want her to be able to go back to school and feel normal again.

Dr. Mostafa:
Absolutely, Mrs. Hasnaa. We will work together to help Farida feel better and get back to her normal routine. Please feel free to ask me any questions you may have at any time.

- **Imp key points**

- Functional abdominal pain is a recurrent pain condition in children that is real but not caused by any underlying disease, infection, or inflammation. It occurs due to hypersensitivity of the gut nerves.
- Potential contributing factors include irregular bowel contractions (like in irritable bowel syndrome), gut microbiome imbalance, genetic predisposition, stress, anxiety, irregular eating habits, and past mild infections.
- Analgesics like **paracetamol** can be used occasionally, but **NSAIDs** (like ibuprofen) should be avoided for frequent use as they may irritate the stomach.
- **Probiotics** may help some children, though evidence of effectiveness is limited. **Peppermint oil** can relieve pain due to its antispasmodic properties, but age restrictions apply. For younger children, **peppermint tea** may be considered.
- Management includes **Cognitive Behavioral Therapy (CBT)** for coping skills, **relaxation techniques** like meditation, maintaining a symptom diary, and reducing school-related stress.
- Close monitoring and collaboration with the school can help minimize the impact on the child's routine and education.
- The main goal is to manage the pain effectively and support the child's return to normal activities.

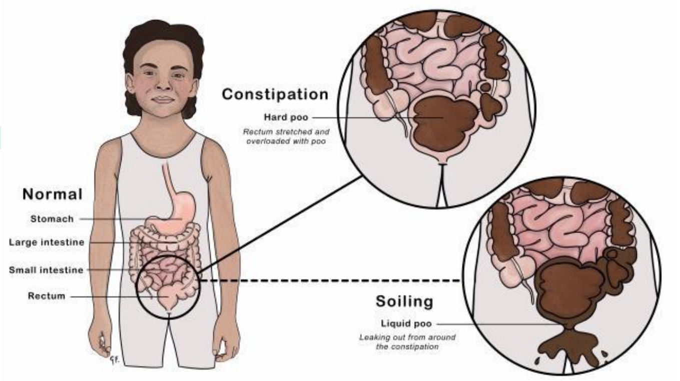
Functional constipation

Background information:
Mrs. Nadia is the mother of Hassan, a 6-year-old boy who has been receiving treatment for chronic constipation. His doctor recently increased the dose of Movicol (a stool softener). Following this change, Hassan began passing loose stools in his underwear. Concerned that this was a side effect of the medication, Mrs. Nadia stopped giving him Movicol. Upon examination, Dr. Ali found that Hassan had fecal impaction and recommended restarting Movicol, but Mrs. Nadia was hesitant to do so.
Role: ST3 Dr Ali speaking with Mrs Nadia mother of Hassan.
Task: explain Hassan condition to Mrs Nadia and answer her concerns about his management.

Dr. Ali:
Good morning, Mrs. Nadia. I understand you're concerned about Hassan's recent symptoms, can you tell me a bit more about this concern?

Mrs. Nadia:
Yes, doctor. Hassan has been on Movicol for a while, but recently he started passing loose stools in his clothes. I was really worried that the medication was causing it, so I stopped giving it to him.

Dr. Ali:
I see. It's completely understandable that you'd be worried. But what you're describing is actually a common symptom in children with long-term constipation. When a child has a **build-up of hard stool in the bowel**—what we call **fecal impaction**—the newly formed softer or liquid stool can leak around the blockage. This often looks like diarrhea or accidents in the underwear, but it's actually a sign that the bowel is overloaded, we call it soiling.
DRAW



Mrs. Nadia:
So, the medicine didn't cause the loose stool?

Dr. Ali:
That's right. The Movicol is not causing the soiling—it's a result of the constipation itself. In fact, stopping the medication might make things worse, because the blockage remains and the bowel can't function properly. When I examined Hassan today, I could feel that the stool is still impacted in his tummy.

Mrs. Nadia:
Oh, I didn’t realize that. So what should we do now?

Dr. Ali:
The first step is to **clear the blockage** using a higher dose of Movicol. Once the bowel is cleared, we’ll reduce the dose to a **maintenance level** to keep his bowel movements regular and prevent this from happening again. It’s important not to stop the medicine too early, even if things start to look better.

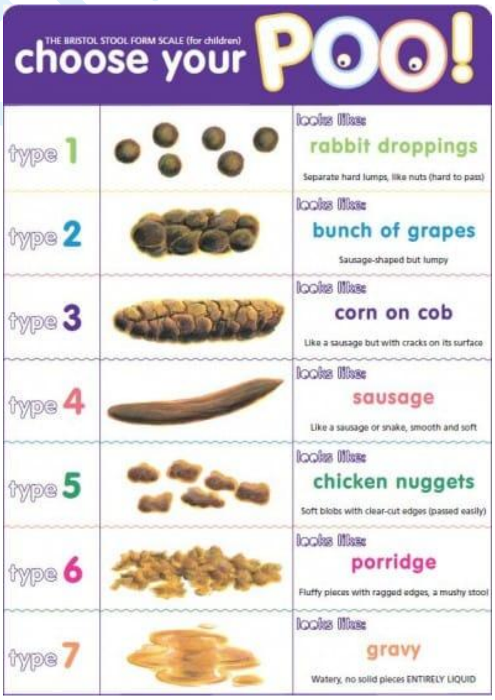
The maintenance treatment requires also some dietary modification:

Fluid, Fruit, Fibers.
Fluid: ensure that he take good amount of fluid per day
Fruit: better to eat whole fruit instead of juice
Fibers: should be included in every meal.

Mrs. Nadia:
Is it safe for him to be on Movicol for that long?

Dr. Ali:
Movicol generally safe for children, even when used for months if needed. But like any medication it could have some side effects however weighing risk vs benefit the benefit is more. The side effects could be bloating, stomach cramps, sometimes it causes nausea, so at any time if he developed any new symptoms don’t hesitate to come back to us. We’ll monitor him regularly and adjust the dose as his condition improves.

We will provide you also with **Bristol chart** which contain the different shapes of stool this will help us to recognise if his constipation is improving or not.


THE BRISTOL STOOL FORM SCALE (for children)
choose your POO!
type 1
looks like:
rabbit droppings
Separate hard lumps, like nuts (hard to pass)
type 2
looks like:
bunch of grapes
Sausage-shaped but lumpy
type 3
looks like:
corn on cob
Like a sausage but with cracks on its surface
type 4
looks like:
sausage
Like a sausage or snake, smooth and soft
type 5
looks like:
chicken nuggets
Soft blobs with clear-cut edges (passed easily)
type 6
looks like:
porridge
Fluffy pieces with ragged edges, a mushy stool
type 7
looks like:
gravy
Watery, no solid pieces ENTIRELY LIQUID

Mrs. Nadia:
How does the Movicol work?

Dr. Ali:
Movicol is a substance which bind the water in the faeces and make it soft and bulky which stimulate the gut to evacuate.

Mrs. Nadia:
Can Movicol cause lazy gut after period of use I'm really afraid of that?

Dr. Ali:
I really appreciate your worries Mrs Nadia I want to reassure you Movicol is an **osmotic laxative**. It works by drawing water into the bowel, making stools softer and easier to pass. It **does not directly stimulate bowel muscles**, so it doesn't force the bowel to move—it simply helps stool move more naturally. So even with prolonged use it will not cause any problem with the gut, so don't worry about that.

Mrs. Nadia:
Does this affect him psychologically because I feel that he is slightly withdrawn than before.

Dr. Ali:
I'm sorry to tell you that it could affect him psychologically**,** children may experience **low self-esteem**, **social withdrawal**, **avoid activity**, and **anxiety**, especially if they struggle with toilet accidents or discomfort. Fear of using the toilet can worsen withholding behaviours, creating a cycle of constipation and distress.

That's why we need to:

- Reassure the child—**do not blame or punish** them for accidents.
- Address any associated conditions like **tears, fissures, or piles**, which can cause pain and fear of passing stools.
- **CBT-style support**, even informally (e.g. reassurance, normalizing the experience), can help children manage anxiety around toileting.

We can use some motivational tools like:

- Use **reward systems** like a **star chart** or **brace system** to positively reinforce attempts to use the toilet.
- Encourage a regular toilet routine, especially after meals, and make it a calm, stress-free experience.

- Ensure the child is drinking enough **fluids** throughout the day.
- Continue with **laxatives as prescribed**.
- Don't stop laxatives too early—even if the child is passing stool daily, early discontinuation often leads to relapse. Always consult your healthcare provider before stopping.

Mrs. Nadia:
Shall he grow out of it, or he might require surgery?

Dr. Ali:

- Managing functional constipation can take **months or even years**.
- With patience and consistent care, **most children grow out of it** without needing surgery.
- Rarely, if complications arise (e.g. **intestinal obstruction**), surgical assessment may be required.

Mrs. Nadia:
Dr is it my fault to have this constipation because one of the drs told me before that this is because I buy poor food for my child?

Dr. Ali:
I'm really sorry about that Mrs Nadia but actually its not your fault at all, it's one prevalent myth is that constipation is mainly caused by poor diet or insufficient fluid intake. While encouraging a diet rich in fiber and fluids is beneficial, **functional constipation often has multiple causes**, including behavioral and psychological factors. Sometime overprotective or inconsistent toilet training practices ("babying" the child) may contribute to stool withholding behaviors. Food alone is rarely the sole cause.

Mrs. Nadia:
Thank you, Dr. Ali. That really helps. I was so worried I might have made things worse.

Dr. Ali:
You're doing your best for Hassan, and it's good you came in today. We'll go through this step by step together. I'll give you a written plan for his treatment, and we'll schedule a follow-up to see how he's getting on. If you have any concerns in the meantime, please don't hesitate to get in touch.

If medical student

- **When to Consider Referral to Gastroenterology (GE):**
  - Failure of first-line management (e.g., with macrogol or lactulose)
  - Suspected underlying **organic causes** (e.g., Hirschsprung's disease, spinal abnormalities, or hypothyroidism)
  - Signs of complications such as **impaction**, **megacolon**, or **soiling** (encopresis)
  - **Chronicity**, lack of response, or suspected **non-compliance**
  - Need for specialized investigations or interventions
- **Mental Health Referral:**
  - Routine referral to psychiatry or CBT is **not necessary** unless there's significant emotional or behavioral concern.
  - Psychoeducation can help families understand the nature of functional constipation and adherence to treatment.

- **Management in Primary Care:**
    - Should be **initiated and monitored** unless red flags are present.
    - Referral to secondary care or EU (elective unit) is only indicated when complications or treatment resistance are evident.

What Causes It?

Functional constipation means there is **no underlying medical condition** causing the problem. It's often linked to lifestyle and behavioral habits such as:

- Not eating enough fiber-rich foods
- Not drinking enough fluids
- Not getting enough physical activity
- Withholding stool due to fear, pain, or emotional stress
- Changes in routine (e.g., starting school, travel)

ROME criteria :

FUNCTIONAL CONSTIPATION

Diagnostic criteria *Must include* ***one month of at least two*** *of the following in infants up to 4 years of age:*

1. Two or fewer defecations per week
2. History of excessive stool retention
3. History of painful or hard bowel movements
4. History of large diameter stools
5. Presence of a large fecal mass in the rectum

In toilet trained children, the following additional criteria may be used:

6. At least one episode/week of incontinence after the acquisition of toileting skills
7. History of large diameter stools which may obstruct the toilet

Refaat

Imp key points

1. Understanding the Condition:
Loose stools can occur due to **fecal impaction (overflow soiling)**, where a large, hard stool blocks the bowel, and softer stool leaks around it.
This is a sign of severe constipation, not diarrhea caused by the medication.

2. Treatment Plan:
Disimpaction: Start with a **higher dose of Movicol** to clear the blockage.
Maintenance: Gradually reduce Movicol to a lower dose to maintain regular bowel movements.
Dietary Changes: Prioritize the "Three Fs":
  Fluid: Ensure adequate water intake daily.
  Fruit: Prefer whole fruits over juices.
  Fiber: Include high-fiber foods in each meal.

3. Safety of Movicol:
Movicol is **safe for long-term use** under medical supervision.
Common side effects: bloating, cramps, nausea (usually mild and temporary).
It does **not cause "lazy gut"**, as it works by softening stools, not stimulating the bowel muscles.

4. Psychological Support:
Constipation can lead to **low self-esteem, social withdrawal, and anxiety** in children.
Supportive strategies:
  Reassure the child—no blame for accidents.
  Use reward systems (like a star chart) to encourage toilet use.
  Maintain a calm, stress-free toilet routine.

5. Long-Term Outlook:
Most children outgrow functional constipation with proper management.

6. Important Reassurance:
Constipation is rarely caused by poor diet alone.
Multiple factors, including **behavioral and psychological** aspects, can contribute.

7. Follow-Up:
Provide a **written treatment plan**.
Schedule regular follow-ups to monitor progress.
Seek help for any concerns or new symptoms.

Imperforate anus

- Background information: **Dr. Sami, an ST3 colleague, discharged a newborn who was later found to have an imperforate anus. At the time of discharge, he relied on nursing documentation stating that the baby had passed stool, but did not perform a direct examination of the anal opening himself. Two days later, the infant presented to the Emergency Department with signs of intestinal obstruction.**
- **Task: discuss this clinical oversight with him, both to reflect on the missed diagnosis and to consider the implications for urgent surgical, as well as to prevent similar occurrences in the future.**
- **Role: Dr Hani ST4**

Dr. Hani: Good afternoon, Dr. Sami. How are you doing in our department?

Dr. Sami: I'm upset! I have a problem I discharged baby and after 2 days they found to have imperforate anus, I don't know how he was Passing stool, I'm sure I've seen the nursing records, and they wrote that he passed stool.

Dr. Hani: "I understand how upsetting this must feel, Sami. It's a very difficult situation, and you're not alone — we're here to support each other and learn from this together.

I know you checked the nursing notes, and yes, they mentioned that the baby passed stool. But with conditions like imperforate anus, **a direct physical examination of the perineum and anus is always essential,** even if stool is reported. This isn't about blame — it's a learning point for all of us. The most important thing now is to reflect on it and make sure we all improve our discharge checks, especially for newborns.

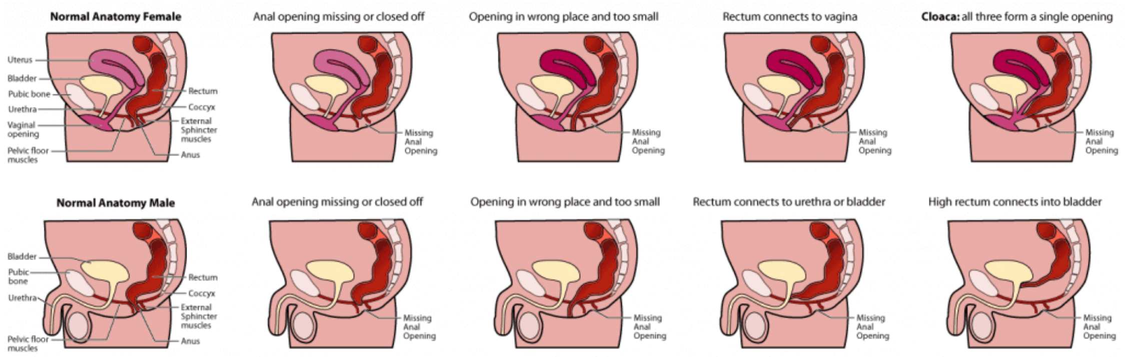
Dr. Sami: I thought that in imperforate anus the baby will never pass stool, that's why when I found that the baby passed meconium I thought he doesn't have any problem

Dr. Hani: So, Dr Sami let me ask you, do you know that imperforate anus can come with different forms?

Dr. Sami: yes, but I couldn't remember them. Could you explain it to me?

Dr. Hani: Of course, Imperforate anus is a congenital condition where the baby is born **without a normal anal opening**. There are different types: **DRAW**

- **Low-type**: The rectum may end close to the skin with a thin membrane.
- **High-type**: The rectum ends further up and may be connected to the urinary tract or vagina by a fistula.


Normal Anatomy Female
Uterus
Bladder
Pubic bone
Urethra
Vaginal opening
Pelvic floor muscles
Rectum
Coccyx
External Sphincter muscles
Anus
Anal opening missing or closed off
Opening in wrong place and too small
Rectum connects to vagina
Cloaca: all three form a single opening
Missing Anal Opening
Normal Anatomy Male
Bladder
Pubic bone
Urethra
Pelvic floor muscles
Rectum
Coccyx
External Sphincter muscles
Anus
Anal opening missing or closed off
Opening in wrong place and too small
Rectum connects to urethra or bladder
High rectum connects into bladder
Missing Anal Opening

Sometimes there could be severe stenosis or abnormally positioned anus allowing very small amount of meconium to pass through so it can give the picture of intestinal obstruction as well.

Dr. Sami: Oh I got this, but what make some babies have this condition?

Dr. Hani: The exact cause often is unknown but some factors could affect the incidence like genetic factors, maternal drug intake during pregnancy, alcohol intake, some times in association with syndromes like Down syndrome or part of association like VACTREL association.

Dr. Sami: And what is the prognosis of this condition?

Dr. Hani: The prognosis varies depending on several factors:

- **Type** of imperforate anus (low-type usually has better outcomes than high-type).
- **Severity** and whether there's a fistula or associated anomalies.
- Presence of other **congenital abnormalities** (VACTERL association).
- **Timing and success of surgical repair** (early diagnosis and intervention help).

Overall, prognosis is **generally favourable** with proper surgical and follow-up care, especially in isolated low-type cases.

Dr. Sami: OMG, What if this gets to the GMC?

Dr. Hani: I hear you, and your concern is valid. These situations can feel overwhelming. But we are a team work and you want be alone if any problem happened, mistakes do happen but we try to prevent it from happening again. So, let's take a step back. Right now, this appears to be an isolated clinical oversight, not gross negligence or intentional harm. That's an important distinction — and it matters. The GMC usually gets involved when there is:

- A repeated pattern of unsafe care,
- Serious professional misconduct,
- Or a risk to patient safety.

In your case, it sounds like:

- You followed what was written in the notes,
- There was no bad intention or neglect,
- And you're being honest and willing to learn — which is exactly what they want to see.
- If it ever did escalate, you'd have support from:

Dr. Sami: I'm afraid they could see me in the court. What if the parents sue?

Dr. Hani: If it ever did escalate, you'd have support from:

- Your **Medical Defence Union (MDU)** or **Medical Protection Society (MPS)**,
- Your **Trust or Hospital's legal/governance team**,
- And colleagues who can speak to your good character and professionalism.

The best step now is to document everything **factually**, show that you're **reflecting and learning**, and continue to be honest and proactive.

Dr. Sami: How can I avoid this from happening next time?

Dr. Hani: this is very good question Dr Sami

☐ Always **do a full physical examination** before discharge:

- Head-to-toe check, including **inspection of the perineum and anus**.
- Never rely solely on documentation — verify personally.

☐ If **in doubt — escalate**:

- Ask for a **second opinion** from a senior or neonatologist.
- Don't discharge the baby until the concern is clarified.

☐ Safety-**netting and parent advice**:

- Provide **clear discharge instructions**.
- Educate parents about **red flags**, such as:
  - Abdominal distension
  - Vomiting
  - No passage of stool or unusual passage (e.g. via vagina or urethra)
- Advise when and where to return urgently.

☐ **Documentation**:

- Clearly write: "Perineum examined. Anus patent, centrally located."
- If uncertain, document what was done and escalate appropriately.

Imp key points

1. Understanding Imperforate Anus:

- **Definition:** A congenital condition where a baby is born without a normal anal opening.
- **Types:**
    - **Low-type:** Rectum ends close to the skin, may be covered by a thin membrane.
    - **High-type:** Rectum ends higher, may be connected to the urinary tract or vagina (fistula).
    - **Other Forms:** Severe stenosis or abnormal positioning can also occur.

2. Causes and Risk Factors:

- Often **unknown**, but can be influenced by:
    - **Genetic factors.**
    - **Maternal drug or alcohol use during pregnancy.**
    - Associated with syndromes like **Down syndrome** or **VACTERL association** (Vertebral, Anorectal, Cardiac, Tracheoesophageal, Renal, Limb anomalies).

3. Prognosis Factors:

- **Type:** Low-type generally has better outcomes than high-type.
- **Severity:** Presence of a fistula or other abnormalities can impact outcome.
- **Timing of Surgery:** Early diagnosis and timely surgical repair are crucial.
- **Associated Conditions:** Prognosis is better if isolated.

4. Preventing Similar Incidents:

- **Full Physical Examination:** Always perform a head-to-toe check, including inspection of the perineum and anus.
- **Don’t Rely on Notes Alone:** Verify stool passage with a direct examination.
- **Seek a Second Opinion if in Doubt:** Consult a senior or neonatologist.
- **Clear Documentation:** Record “Perineum examined. Anus patent, centrally located.”
- **Parent Education:** Instruct parents about red flags (abdominal distension, vomiting, no stool, or abnormal stool passage).

5. Legal Concerns and GMC Involvement:

- GMC usually intervenes in cases of:
    - Repeated unsafe practice.
    - Serious professional misconduct.
    - Clear risk to patient safety.
- Support systems: Medical Defence Union (MDU), Medical Protection Society (MPS), and Trust legal teams.

Toddler diarrhoea

Background: Mrs. Hala, a concerned mother, brings her 2-year-old daughter Nelly to the paediatric clinic with a history of frequent loose stools persisting for the past two months. Nelly has three to four episodes of watery stools per day, often containing undigested food particles. Despite the diarrhoea, Nelly remains active, has a good appetite, and continues to grow well, with her weight consistently within the normal range for her age.

A recent stool analysis showed the presence of undigested food, yeast, and bacteria. Mrs. Hala is deeply worried because one of her neighbour's children was recently diagnosed with cancer after having similar symptoms. She fears that Nelly's symptoms could indicate something serious like cancer. Mrs. Hala seeks guidance, reassurance, and clarity about her daughter's condition.

Role: Dr Adam ST3
Task: discuss with Mrs Hala about Nelly's condition and answer all her concerns.

Dr. Adam:
"Good morning, Mrs. Hala. It's great to see you and Nelly. Could you tell me what's your main concern about Nelly.

Mrs. Hala: Nelly has loose stool for 2 months, I'm afraid she could have cancer.
That is completely understandable, and I want you to know I'm here to answer all your concerns.

Dr. Adam:
First, I have carefully reviewed Nelly's growth chart, and I'm pleased to see that she is growing well for her age. Her weight is within the normal range, and she remains active and playful. These are very reassuring signs.

Unlike cancer, which typically causes symptoms like weight loss, persistent fatigue, pale skin, easy bruising, or other systemic signs, Nelly's case is different. She is thriving, active, and gaining weight — all of which strongly suggest a benign condition rather than something serious. Because if the cause here is serious it will make her dry, and affect her general health.

Mrs. Hala: so, Dr what is the cause of this loose motion?

Dr. Adam:
this is very good question. After examining Nelly and doing the stool analysis we found that she has condition called Toddler's Diarrhoea, have you heard about it before?

Mrs. Hala: No Dr what is this?

Dr. Adam:
Toddler diarrhea (also called **chronic nonspecific diarrhea of childhood**) is a common and harmless condition in children aged **6 months to 5 years**, especially between **1 and 3 years**. Your child may have **loose or watery stools several times a day**, but they appear **healthy, active, and are growing normally**.

Mrs. Hala:
what is the cause of this toddler diarrhoea?

Dr. Adam:
The most acceptable theory: immaturity of gut. Which may process food too quickly. Sometimes they have episodes wax & wane —it could happen through the time of development. Also, too much fruit juice, low fat, or high fiber can contribute.
Drinking a lot of liquids can speed up bowel movements.

Mrs. Hala:
But they told me her stool analysis contain bacteria and some thing else does it means she has infection in her gut?

Dr. Adam:
yes Mrs Hala, I have also looked at her stool analysis,it showed undigested food particles, yeast, and some bacteria. These findings can be concerning for the parents, but I want you to know that they are actually quite common in young children and are often part of the **toddler diarrhoea**. This is not an infection, and it is not harmful.
Undigested food caused by immaturity of gut & lots of beverages overwhelming the gut to move quickly — not enough time for food to digest well. Also, children not chewing well.
and these bacteria are normal microbes which present normally in the gut.
We call it **friendly bacteria**. It's normal to find it in stool analysis.

Mrs. Hala:
How it could be treated?

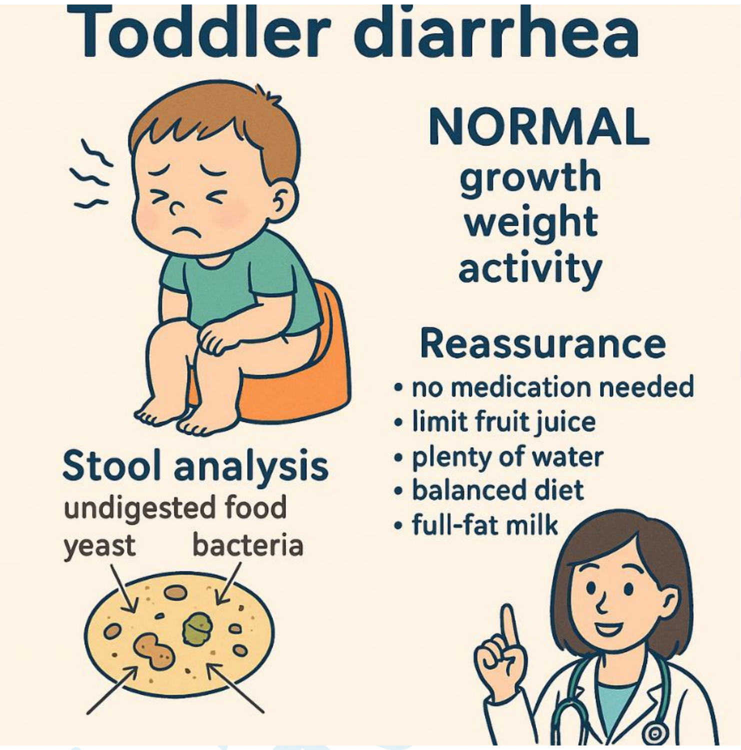
Dr. Adam:

1. **No medication needed** – it usually resolves on its own.
2. **Healthy diet**:
   - Give **full-fat milk** (not skimmed).
   - Limit **fruit juice** and sugary drinks.
   - Offer **plenty of water**.
   - Include **balanced amounts of fiber** and **healthy fats**.
3. **Normal activity** – let them stay active and eat what they enjoy, within reason.
4. **Reassurance** – it's common, harmless, and temporary.

Mrs. Hala:
Should I do any more tests or see a specialist?

Dr. Adam:
At this stage, there’s no need for further tests. We’ll continue to monitor Nelly’s growth and development during regular check-ups. If there are any changes—such as weight loss, blood in the stool, or if she seems unusually tired or unwell—please come back to see us.

You're not alone in this. We’ll support you throughout and make sure Nelly stays healthy and happy.


Toddler diarrhea
NORMAL
growth
weight
activity
Reassurance
• no medication needed
• limit fruit juice
• plenty of water
• balanced diet
• full-fat milk
Stool analysis
undigested food
yeast
bacteria

Imp key points

- **Cause of Toddler Diarrhea:**
  - Immature gut processing food too quickly.
  - Excessive fluid intake (like fruit juices) and low-fat diet can contribute.
  - Stool analysis showing undigested food, yeast, and bacteria is normal in this condition.
- **Management and Treatment:**
  - No medication is needed.
  - Adjust diet: full-fat milk, limit fruit juice, balanced fiber, and fat intake.
  - Ensure Nelly stays active and drinks plenty of water.
- **No Further Tests Required:**
  - Regular check-ups to monitor her growth.
  - Return if any alarming symptoms appear (weight loss, blood in stool, persistent fatigue).

Crohn’s disease

Role: Dr Hossam ST4 doctor.

Background information: Sara, a 14-year-old, has recently been diagnosed with Crohn's disease. She has been experiencing digestive issues for the past four months, including significant weight loss, episodes of bloody diarrhoea, elevated faecal calprotectin levels, and low albumin.

Task: explain to Sara her diagnosis in detail and need to initiate enteral feeding as part of her treatment plan.

Dr. Hossam:
Hi Sara, how are you feeling today?

Sara:
I’m okay, but a bit worried. I still don’t understand everything about what’s happening to me, I’m losing weight, my tummy usually hurts specially during the past 4 months, also there is blood in my poo, they did some test for me, but I don’t know the results yet.

Dr. Hossam:
That’s completely understandable, Sara. I know it’s very stressful for you. We got your results and knew I want to talk with you about the diagnosis, would you like any one to attend this meeting with you?

Sara:
No dr I’m here alone would you tell me please.

Dr. Hossam:
you are not alone Sara, I’m here to help you understand everything clearly, and you can stop me if anything is not clear. We recently discovered that you have a condition called ***Crohn’s disease.*** Have you heard of it before?

Sara:
Not really. What does it mean?

Dr. Hossam:
Crohn’s disease is a condition that causes inflammation of the wall of the gut (gastrointestinal tract). Any part of the gut can be affected. This is why you’ve been having stomach pain, diarrhea with blood, and losing weight.

Sara:
Is it something transient, or will it ever go away?

Dr. Hossam:
I’m sorry to tell you Sara Crohn's disease is a lifelong condition with flare-ups from time to time. The flare-ups vary in frequency and severity. But the good news is that with the right treatment, we can manage it and help you feel much better. Our main goals are to reduce the inflammation and keep you healthy.

Sara:
What is the cause of that?

Dr. Hossam:
The exact **cause of Crohn's disease** is not fully understood, but it is believed to result from a combination of three main factors: **gene factor** because they found some people having crhons disease could share the same gene, also defect in **defence system** could be the cause It means that your body's defence system is mistakenly attacking parts of your gut instead of attacking microbes, causing inflammation. It could be related also to some **environmental factors** thought that it could predispose to crhon's like certain diet, smoking, and certain infections.

Sara:
Dr you said its related to genes does it mean it could run in families?

Dr. Hossam:
I'm sorry to tell you Sara that yes, it could run in families. However, having a family history does not guarantee that someone will develop Crohn's, but it does increase their risk.

Sara:
So, what do I have to do now?

Dr. Hossam:
Good question. As I told you Sara this disease go into flare ups during this flare ups our goal is to stop this flare, we call it induce remission, after settling the symptoms we give maintenance treatment to prevent further flares or even to prolong the duration between the flares. Am I clear till now?

Sara:
Yes Dr, how will you do that?

Dr. Hossam:
There is different options for management, the best option for you now is some thing called enteral feeding, have you heard about it before?

Sara:
No Dr.

Dr. Hossam:

Enteral feeding means you'll be getting a special type of nutrition that contains basic proteins and other nutrients has been found to help in remission. This will help reduce the inflammation in your intestines, give you the nutrients you need, and help you gain back the weight you lost.

Sara:
Do I have to do that forever?

Dr. Hossam:
Not forever, but for a while until your symptoms improve and your body starts to heal. After that, we can gradually move back to a more regular diet, but we'll always make sure it's healthy and suitable for you.

Sara:
Will it be difficult?

Dr. Hossam:
It might take a bit to get used to, but we will make sure you are comfortable. It's a liquid that you could **drink**, but some people don't accept its taste at this time we give it through **feeding tube** which pass from

the nose to the stomach. We will start gradually and monitor how you are doing closely. I will be here to support you, and so will your family.

Sara:
Oh my god tube from nose to my stomach it sounds so difficult and painful.

Dr. Hossam:
I know Sara it sounds to be difficult but its easily inserted using some lubricants and once its in place it doesn't cause any pain.

Sara:
Will it remain on place all the time or it will be inserted only at time of taking this liquid?

Dr. Hossam:
Usually its kept in place all the time providing that it's in place and working properly.

Sara:
Does this mean I should go to school with that tube in my nose?

Dr. Hossam:
I know Sara it could be distressing but its transient during the time of management. And if you want, we can liase with your school at this time about that.

Sara:
Am I able to eat other food during this time or only this feeding?

Dr. Hossam:
Usually during the acute disease we prefer to be **exclusively on this feeding**, it is usually recommended to **avoid eating other foods**, especially solid foods. This is because:

- **Enteral feeding works best when it is the main source of nutrition**, as it gives your intestines a chance to heal without being irritated by other foods.
- Adding other foods can reduce the effectiveness of the treatment.

However, depending on your specific case, the gut doctor may allow you to have small amounts of clear liquids (like water, broth, or certain juices).

Sara:
For how long should I be on this enteral feeding?

Dr. Hossam:
In most of cases it takes from 6-8 weeks, but the exact duration varies according to the response, all of this will be discussed in detail with the gut dr who is called the GIT doctor.

Sara:
Is this feeding being the only management?

Dr. Hossam:
There is medical options as well as lifestyle modifications and modifications of your diet, in certain cases surgery may be required. But at the moment we will start with enteral feeding, and we will proceed according to your response and to the decision of the GIT dr.

Sara:
Okay, I think I understand better now.

Dr. Hossam:
That’s great, Sara. Remember, you’re not alone in this. We will work together to help you get better.

Imp key points:

What is Crohn’s Disease?

- Crohn's disease is a chronic condition that causes inflammation of the digestive tract (gut).
- It can affect any part of the gut, leading to symptoms like stomach pain, diarrhea with blood, and weight loss.
- The exact cause is not fully understood but involves genetic, immune system, and environmental factors.

Key Facts

- **Lifelong Condition:** Crohn’s disease cannot be cured but can be managed.
- **Flare-ups and Remission:** You may experience periods of severe symptoms (flare-ups) and times with little or no symptoms (remission).
- **Family History:** It can run in families, but not everyone with a family history will develop it.

Treatment Goals

- **Induce Remission:** Control symptoms and reduce inflammation during flare-ups.
- **Maintain Remission:** Prevent future flare-ups and keep you feeling well for longer.

Your Initial Treatment: Enteral Feeding

- You will start with a special type of nutrition called **enteral feeding**.
- It is a liquid formula that provides essential nutrients and helps reduce gut inflammation.
- This can be taken by drinking it, but if that is difficult, it may be given through a tube that goes from your nose to your stomach.

What to Expect:

- The tube may stay in place continuously during the treatment period (6-8 weeks, but it may vary).
- The liquid nutrition is usually your only source of food during this time to help your gut heal.

Can I Attend School?

- Yes, and we can communicate with your school to help them understand your condition.

Other Treatment Options

- **Medications:** Your doctor may add medicines to help control the disease.
- **Lifestyle Changes:** A healthy diet and avoiding triggers (like smoking) are important.
- **Surgery:** This is only considered if other treatments are not effective.

Your Support System

- You are not alone. Dr. Hossam, your medical team, and your family are here to support you.
- Do not hesitate to ask questions or share your concerns at any time.

IVF

CHPS

Background information:
Basel is a term baby now he is 15 weeks of age, he born via normal vaginal delivery, currently weighing 6 lb 4 oz. Over the last two weeks, he has experienced increasing episodes of vomiting, and there have been concerns about poor weight gain, noted by the health visitor. Basel's capillary blood gas analysis indicates metabolic alkalosis, and an ultrasound scan has confirmed the diagnosis of hypertrophic pyloric stenosis (HPS). After consulting with the pediatric surgeon at a tertiary center, it has been decided that Basel needs to be transferred for surgery. Currently, Basel is hemodynamically stable.

Task:
You need to discuss the condition and management plan for Basel with Adel, a pediatric ST1 trainee. Adel has expressed a need to understand more about this case, specifically the condition of hypertrophic pyloric stenosis (HPS), the rationale for the chosen management plan, including intravenous fluid (IVF) calculation, and potential differential diagnoses for Basel's symptoms.

Dr. Nashwa:
Hi Adel, how's your rotation in our unit?

Adel: its good, but I've seen baby Basel who is presented with repeated vomiting and has been diagnosed as pyloric stenosis, I don't know what is the rational of this diagnosis and what could be other causes that we should exclude?

Dr. Nashwa:
that's very good question Adel. There are a lot of causes that can cause vomiting in this age group include:

Condition	Why it's less likely in Basel
Malrotation/Volvulus	Would cause sudden **bilious** vomiting and shock — not present here
Duodenal atresia	Would present **within first 1–2 days** of life with **bilious** vomiting
Gastroesophageal reflux (GORD)	Vomiting is usually mild and doesn't cause metabolic alkalosis
Infections (e.g. UTI, meningitis)	No fever, no signs of systemic illness
Inborn errors of metabolism	Usually present with lethargy, acidosis, and severe illness
Hirschsprung's disease	Presents with delayed meconium and bowel obstruction symptoms
Necrotising enterocolitis	Seen in premature infants, usually acutely unwell
Infectious gastroenteritis	usually includes diarrhea and systemic illness

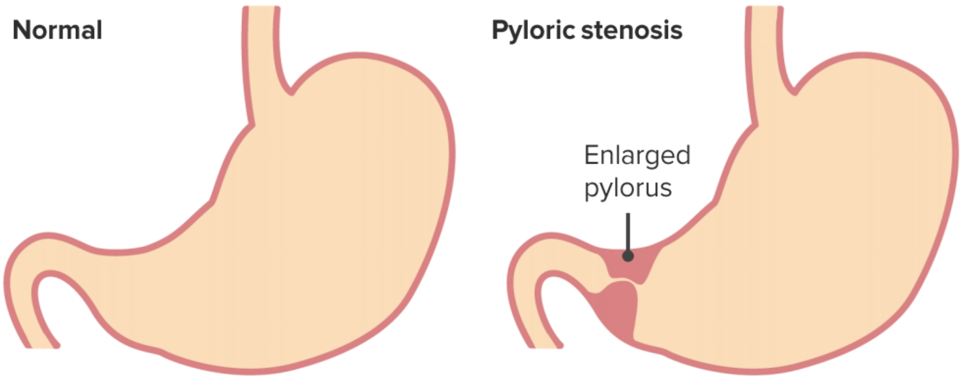
But Basel's **non-bilious projectile vomiting, weight loss, and metabolic alkalosis** point strongly to HPS.

Are you familiar with this condition?

Adel:
I've read about it, but I'd appreciate a walkthrough — especially around fluid management

Dr. Nashwa: DRAW
Absolutely. HPS is a condition where the pyloric muscle hypertrophies, leading to **gastric outlet obstruction** (**the muscle of the pylorus (the outlet of the stomach) becomes thickened, causing**

narrowing of the passage from the stomach to the small intestine). This typically presents after the 2nd week of life. Key symptoms are **progressive non-bilious vomiting**, **visible peristalsis**, and **poor weight gain**.


Normal
Pyloric stenosis
Enlarged pylorus

Adel:
That matches Basel's history — two weeks of vomiting and failure to thrive.

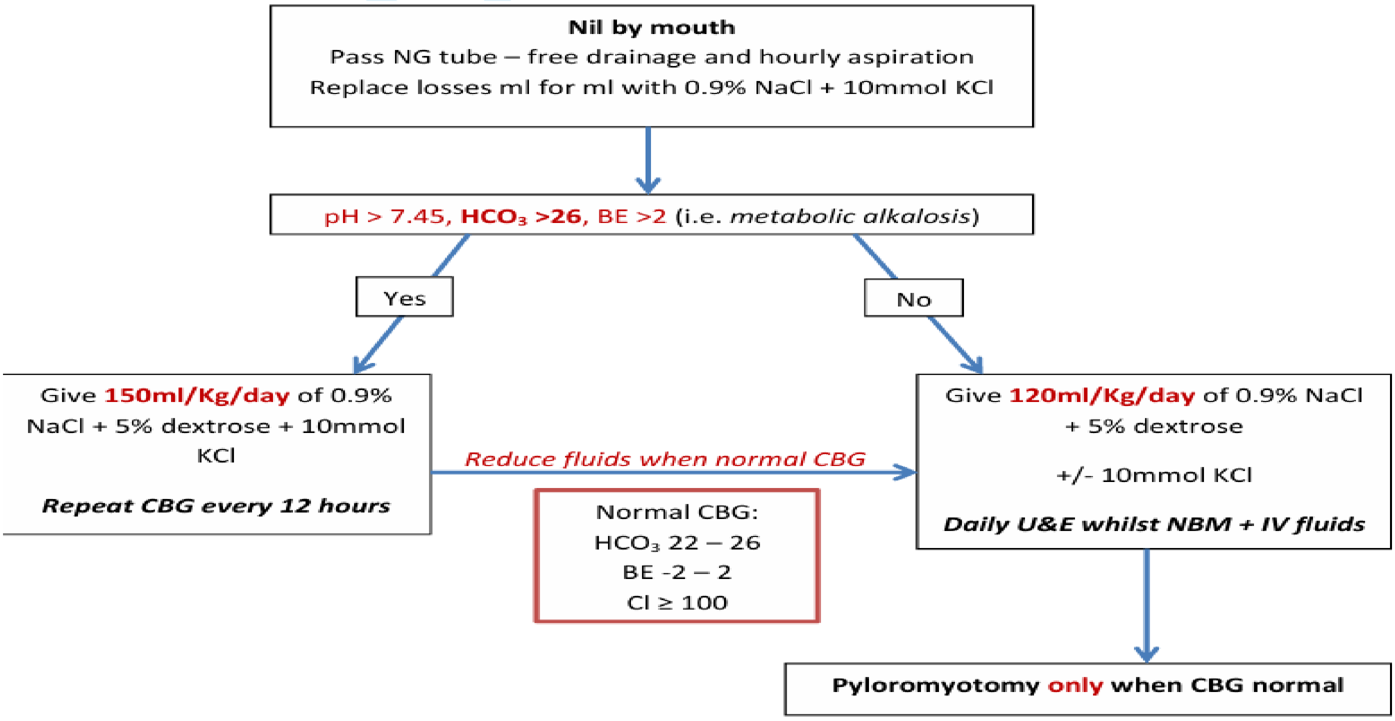
Dr. Nashwa:
Exactly. Also, the **capillary blood gas** shows **metabolic alkalosis**, which is classic. Babies lose hydrogen and chloride ions via vomiting, leading to **hypochloraemia, hypokalaemia metabolic alkalosis**. Did you review his electrolytes?

Adel:
Yes, chloride was low, potassium slightly reduced, and pH elevated.

Dr. Nashwa:
Good. Now, before surgery, we must **correct fluid and electrolyte imbalances**. Surgery is delayed until the baby is biochemically stable.

Adel:
Can you guide me through the fluid plan? And how much fluid this baby will take?

Dr. Nashwa:


Nil by mouth
Pass NG tube – free drainage and hourly aspiration
Replace losses ml for ml with 0.9% NaCl + 10mmol KCl
pH > 7.45, HCO₃ >26, BE >2 (i.e. metabolic alkalosis)
Yes
No
Give 150ml/Kg/day of 0.9% NaCl + 5% dextrose + 10mmol KCl
Repeat CBG every 12 hours
Reduce fluids when normal CBG
Normal CBG:
HCO₃ 22 – 26
BE -2 – 2
Cl ≥ 100
Give 120ml/Kg/day of 0.9% NaCl + 5% dextrose
+/- 10mmol KCl
Daily U&E whilst NBM + IV fluids
Pyloromyotomy only when CBG normal

Dr. Nashwa:
Basel weighs **6 lb 4 oz**, that's about **2.83 kg**. Using the previous **formula**:

- So, 2.83 × (120/150) = 340/ 425 **mL/day** according to the presence of metabolic alkalosis

Adel:
How often do we repeat bloods?

Dr. Nashwa:
Every **4–6 hours initially**, to monitor pH, bicarbonate, Na+, K+, Cl−. We're aiming for **correction over 24–48 hours** before surgery.

Adel:
Is the symptoms and bloods enough for diagnosis or how to confirm diagnosis?

Dr. Nashwa:
Ultrasound abdomen: only needed if clinical diagnosis doubted, they measure the pyloric muscle length and thickness and put on corresponding centile charts. If there is increase in the thickness and length that confirms the diagnosis.

Adel:
who is at greater risk for HPS?

Dr. Nashwa:
More common in:

- **First-born males**
- **Family history**
- **Formula-fed babies**
- **Babies receiving certain drugs early as macrolides.**

Adel:
What is the surgery for CHPS?

Dr. Nashwa:
Once baby is **fully rehydrated and biochemically stable**, proceed with:

- **Ramstedt pyloromyotomy** (standard surgical treatment)
- Performed laparoscopically or open
  Usually after **24–48 hours** of fluid correction

Adel:
Do we start feeding immediately after the operation?

Dr. Nashwa:
That's very good question, its according to the surgical team decision but usually we:

- Restart feeds within 6–24 hours post-op
- Start with small amounts, increase as tolerated
- Reduce IV fluids as enteral intake increases, decrease IV fluids gradually
- Stop IV fluids Once baby tolerates >75% of feeds orally
- Most babies recover well and go home in 2–3 days
- Monitor for complications like vomiting, dehydration, or electrolyte imbalanc

Adel:
Is metabolic alkalosis has any prognostic factor?

Dr. Nashwa:
Yes — **metabolic alkalosis** in **hypertrophic pyloric stenosis (HPS)** is more than just a diagnostic clue — it also has **prognostic significance** and can influence the **timing and safety of surgery**.

- Surgery is **unsafe** in the presence of **severe metabolic alkalosis**.
- Alkalosis increases the risk of:
  - **Cardiac arrhythmias** (from low potassium)
  - **Poor respiratory compensation** under anesthesia
  - **Postoperative apnea** in neonates

⌛ **Prognosis improves once fluids and electrolytes are normalized** — hence, the principle:
👉 "**Resuscitate before you operate**"

If everything is clear for you now just let me know what did you get from that meenting

Adel:
Thank you, that really clarified it. So to summarize correct fluids and electrolytes first, monitor closely, and surgery only once he's stable.

IVF in neonates

Background information: Dr Ali medical student, during his round in neonatal unit he found that some babies receiving IVF and some not, also he found that IVF in neonates calculated in different way than adults. He tried to figure it out but he can't understand how it's calculated.

Role: Dr Islam ST4 Registrar.
Task: Explain to Dr Ali the IVF used in neonates, who requires to be on IVF, how to manage babies on IVF and answer all his concerns

Dr. Islam:
Good morning, Ali. How's your round in our unit?

Ali:
Good, Dr. Islam. But I'm confused about when to give IV fluids (IVF) to neonates. Could you clarify?

Dr. Islam:
Great question. Not all neonates require IVF. We typically give it to babies who are lethargic, have feeding difficulties, respiratory distress, shock, severe asphyxia, abdominal distension with bilious or bloody vomiting, and all preterm babies under 1250–1500g.

Do you know how IVF calculations differ in neonates?

Ali:
I noticed they're different from adults and children, but I'm not sure why.

Dr. Islam:
Good observation. Neonates are physiologically distinct due to:

- **Higher total body water** (75–85%)
- **Immature kidneys**, with reduced filtration and sodium handling
- **Greater insensible water loss** from skin and lungs
- **High glucose needs** due to limited glycogen stores
- **Rapid fluid shifts and small margins for error**
- **Immature organs** that are sensitive to imbalances

Pathologically, they face unique conditions like meconium aspiration and congenital anomalies, making individualized IVF crucial.

Ali:
That makes sense. So, how do we start and manage IVF in neonates?

Dr. Islam:
Management involves four steps:

1. **Initial Assessment**: Consider gestational age, birth weight, urine output, and baseline labs.
2. **Type & Amount of IVF**:

    - **Day 1**: 10% dextrose, 60–80 mL/kg/day (higher for preterms)
    - **Day 2–3**: Add sodium and potassium if urine output is adequate
3. **Monitoring**:
    - Weight: daily
    - Urine output: hourly (target ≥1–2 mL/kg/hr)
    - Electrolytes: daily initially
    - Glucose: every 4–6 hours
    - Clinical exams: every shift
4. **Titration & Weaning**:
    - Gradual IVF increase (10–20 mL/kg/day)
    - Early introduction of feeds (preferably colostrum)
    - Wean IVF once oral intake reaches 100–120 mL/kg/day

Ali:
How do we calculate maintenance fluid?

Dr. Islam:
It's age-dependent:

- **Day 1**: 60–80 mL/kg/day, increasing as tolerated

Fluid components:

- **Glucose**: GIR 4–6 mg/kg/hr
- **Electrolytes**: From Day 2 if urine is adequate (Na^+ 2–3 mmol/kg/day, K^+ 1–2 mmol/kg/day, Ca^+ 100–200 mg/kg/day)

Ali:
Can we rely solely on TPN?

Dr. Islam:
TPN is essential when:

- Enteral feeding isn't possible (e.g., GI anomalies)
- NPO status exceeds 3–5 days
- For very preterm or VLBW infants needing precise nutrition

Ali:
What are the risks of IVF miscalculation?

Dr. Islam:

1. **Overload** → Pulmonary edema, seizures, hyponatremia
2. **Dehydration** → Hypotension, kidney injury
3. **Electrolyte imbalance** → Seizures, arrhythmias
4. **Metabolic issues** → Acidosis, osmotic diuresis
5. **Rate errors** → Overload or underhydration

Ali:
I've heard of osmolality—what does it mean?

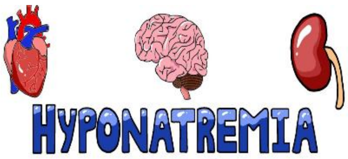
Dr. Islam:
Osmolality reflects the concentration of solutes like sodium, glucose, and BUN in plasma. It's vital for:

- Evaluating water balance
- Guiding IVF type and rate
- Identifying dehydration (>295 mOsm/kg) or overhydration (<270 mOsm/kg)

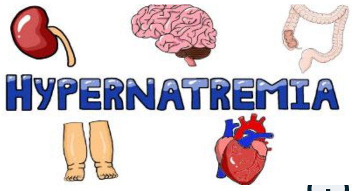
Dr. Islam:
Is everything clear now?

Ali:
Yes, Dr. Islam. That was very informative. Thank you.

Dr. Islam:
Good! Can you summarize what we discussed?



Hyponatremia & Hypernatremia



Background information: Dr Salih medical student, have just seen a case receiving hypertonic saline for hyponatremia he was wondered what is hyponatremia is and how to manage and what is the difference between it and hypernatremia.

Role: Dr Hossam ST4 Registrar.
Task: Explain to Dr Salih the hyponatremia and hypernatremia causes, symptoms and mangement and answer all his concerns.

Dr. Hossam:
Good morning Salih, How’s your rota in our unit?

Salih:
Its good every day I see new cases, yesterday I’ve seen a case of hyponatremia, and I have a lot of question around hyponatremia and hypernatremia, could you help me with that?

Dr. Hossam:
Of course Salih I’m ready to answer all your questions about that topic but before we dive deeper into hyponatremia and hypernatremia, could we first discuss the normal sodium levels and how sodium balance is regulated in the body? Do you have any idea about that?

Salih:
No actually

Dr. Hossam:
ok, Salih. Understanding sodium homeostasis is essential. So let’s begin with the **normal range**: In both children and adults, **normal serum sodium concentration** typically ranges from **135 to 145 mmol/L**.

- **<135 mmol/L** is defined as **hyponatremia, significant if levels fall rapidly or drop below 125 mmol/L.**
- **>145 mmol/L** is defined as **hypernatremia**

These levels are tightly regulated because sodium is the **primary extracellular cation** and crucial for maintaining **osmotic balance**, **extracellular fluid (ECF) volume**, and **neuromuscular function**.

Salih:
So what is the causes of hypo and hyper natremia?

Dr. Hossam:
In our blood there must be a balance between Na & water.
For example, When we have imbalance causing hypernatremia, this could be due to 3 main reasons, either:

- we lose more water than Na
- we gain more Na than water
- No loss no gain

- If we lose more water than Na > it's hypovolemic hypernatremia.
- If we gain more Na than water > it's hypervolemic hypernatremia.
- If no loss no gain > it's euvolemic hypernatremia

And the same in hyponatremia and the causes divided according to it

1️⃣ Hyponatremia (Na < 135 mEq/L)

◆ **Main Causes:**

1. **Hypovolemic hyponatremia** – low sodium due to **loss of both sodium and water**, but sodium loss is greater.
    - Causes: vomiting, diarrhea, diuretics, excessive sweating, burns.
2. **Euvolemic hyponatremia** – normal body sodium but excess water dilutes sodium.
    - Causes: SIADH (Syndrome of Inappropriate ADH), hypothyroidism, adrenal insufficiency.
3. **Hypervolemic hyponatremia** – excess water and sodium, but water excess is greater.
    - Causes: heart failure, liver cirrhosis, nephrotic syndrome, kidney failure.

2️⃣ Hypernatremia (Na > 145 mEq/L)

◆ **Main Causes:**

1. **Hypovolemic hypernatremia** – water loss exceeds sodium loss.
    - Causes: diarrhea, vomiting, excessive sweating, diuretics, diabetes insipidus.
2. **Hypervolemic hypernatremia** – sodium gain exceeds water gain. Usually iatrogenic.
    - Causes: hypertonic saline, sodium bicarbonate, mineralocorticoid excess.
3. **Euvolemic hypernatremia** – water loss without significant sodium loss.
    - Causes: diabetes insipidus (central or nephrogenic), inadequate water intake.

So, it's usually imbalance between Na & water & how to loss or how to gain

Salih:
What are the clinical features?

Dr. Hossam:
Symptoms depend on the rate and severity of sodium drop or sodium gain

In Hyponatremia

- Mild hyponatremia: Often asymptomatic.
- Moderate to severe: Nausea, headache, lethargy, irritability, seizures, or reduced consciousness.

While in Hypernatremia:

- **Mild to Moderate:** Thirst (very common, early sign), Irritability, Restlessness, Headache, Lethargy, Weakness
- **Severe:** Confusion, Altered level of consciousness, Seizures, Coma, Rarely intracranial hemorrhage

Salih:
So can you tell me how to manage hypo and hypernatremia?

Dr. Hossam:

So, the management depend on the reason not all hypo & hypernatremia treat the same way but it differ according to the reason.
If the reason is the patient is losing a lot of fluid, so you must manage the dehydration status.

If the reason was giving too much fluid, so you must manage the hypervolemia.
If the problem is about distribution like nephrotic or heart failure, you must manage that by managing the condition itself.

So not all cases managed in the same way. It's very personalised tailored according to the balance between the water & Na we talked about before.

So let we talk about hyponatremia first in any case of hyponatremia.

1. **Take history**
2. **Assess the child's volume status** (hypovolemic, euvolemic, hypervolemic).
3. **Correct the underlying cause**. SIADH → water restrict
   adrenal insufficiency → CST
4. In **asymptomatic or mild hyponatremia**:
   - Often managed with **fluid restriction** if euvolemic.
   - Review and adjust any hypotonic fluid prescriptions.

5. In **symptomatic or acute hyponatremia (e.g., seizures)**:
   - Treat as a medical emergency.
   - Check vital signs, GCS, ABC
   - Administer **3% hypertonic saline**, typically **2-6 mL/kg over 10–20 minutes** under specialist supervision.
   - Monitor serum sodium every 2–4 hours.
   - The calculate the 24-hr replacement of Na deficit.
   - **Na deficit = (desired – actual Na) X Body wt. X 0.6**

Important: Aim for a **correction rate not exceeding 8–10 mmol/L in 24 hours** to avoid **osmotic demyelination syndrome**. (pontine myelolysis).

Salih:
Understood. And what about hypernatremia?

Dr. Hossam:
in sever (>150) or symptomatic hypernatremia:

- History, Clinical ex
- Check Vital signs
  → sign of dehydration
  → sympt of severe hypernatremia
- Bed side test
  → Bl. sugar
  → Bl. gases
- Air way, Breathing, Circulation
- shock or not

Stabilise circulation first if the child is shocked — using **0.9% sodium chloride (normal saline)**.

Once stable, calculate **free water deficit Total water = (Current Na / 140 – 1) × Body wt. × 0.6**

50% deficit in 1st 24 hr 50% over 48 hr or slower according to the decrease of S. Na.

Frequent monitoring:

- Serum sodium every 4–6 hours.

    - Avoid rapid correction — do **not lower sodium by more than 0.5 mmol/L per hour**, or **10–12 mmol/L per 24 hours**, to prevent **cerebral edema**.

Salih:
That makes sense. Are there any general principles to keep in mind?

Dr. Hossam:

- Always **review fluid prescriptions** regularly in hospitalized children.
- Avoid **hypotonic fluids** in acutely unwell children unless specifically indicated — NICE recommends **isotonic fluids for routine maintenance**.
- In both hyponatremia and hypernatremia, the **rate of correction** is as important as the **absolute sodium level**.
- Close monitoring is key — both **clinically and biochemically**.

Salih:
Thank you, Dr. Hossam. That was very clear and clinically focused.

Dr. Hossam:
You're welcome, Salih. These are crucial topics, especially in acutely unwell children. Always treat the child, not just the numbers, and never hesitate to escalate concerns early.

Imp notes:

Normal Na: 135–145 mmol/L
Problem = **imbalance between sodium and water (ratio issue)**

🔹 **Hyponatremia (<135 mmol/L)**
Usually: Excess water relative to sodium
📌 **Severe / Symptomatic (seizures)**
- 3% hypertonic saline **2–6 mL/kg over 10–20 min**
- Monitor Na every 2–4 hrs

📌 **Sodium Deficit Formula**

$$\text{Na deficit}=(DesiredNa - ActualNa) \times BW \times 0.6$$

(0.6 = total body water fraction in children; ~0.5–0.6 in adults)
⚠ **Correction Rate**
- **≤ 8–10 mmol/L per 24 hr**
- Risk of rapid correction → **Osmotic demyelination syndrome**

🔹 **Hypernatremia (>145 mmol/L)**
Usually: Water loss > sodium loss
📌 **First**
- If shocked → **0.9% saline** for stabilization

📌 **Free Water Deficit Formula**

$$\text{Water deficit} = \left(\frac{CurrentNa}{140} - 1\right) \times BW \times 0.6$$

📌 **Replacement Plan**
- Give **50% in first 24 hr**
- Remaining over next 24–48 hr

⚠ **Correction Rate**

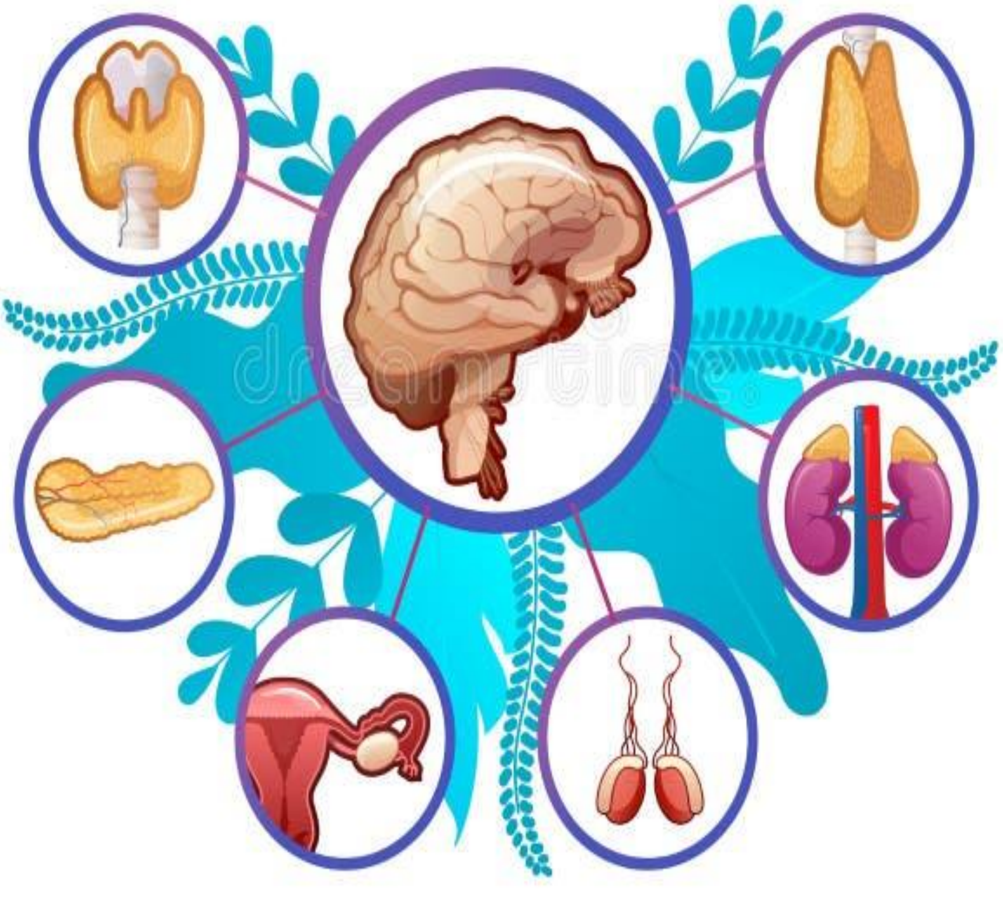
- **≤ 0.5 mmol/L/hr**
- **≤ 10–12 mmol/L per 24 hr**
- Rapid correction → **Cerebral edema**

◆ **Always Remember**

1. Assess **volume status**
2. Treat the **underlying cause**
3. Correct **slowly**
4. Monitor clinically + labs frequently

Treat the patient, not just the sodium number.

ENDOCRINE
SYSTEM



Obesity

Background information: Bayan is a medical student who is concerned about a paediatric case involving a child with recurrent urinary tract infections (UTIs) and obesity. The child has a BMI of 33 (weight: 65 kg, height: 143 cm). The child's father also has obesity, hypertension (blood pressure at the 99th percentile), and diabetes. The child has obese twin siblings.
Role: Dr Ali ST4 Registrar.
Task: Discuss with Bayan the medical student- Definition of obesity, BMI, classification, explain growth charts, causes, Investigations, complications, management.
Adress the relation between obesity and recurrent UTI.

Dr. Ali: Good morning, Bayan. I'm Ali one of the pediatric registrars today, I understand you're reviewing a case involving a child with obesity and recurrent UTIs. And you want to ask some questions about it is that right.

Bayan: Yes, Dr. Ali. The patient is a child with a BMI of 33, weighing 65 kg and standing 143 cm tall. The child's father has obesity, hypertension (blood pressure at the 99th percentile), and diabetes. The child also has obese twin siblings.

Dr. Ali: That's completely understandable, Bayan. These cases can be complex, but I'm here to guide you. Let's start with the basics. What do you know about obesity in children?

Bayan: Obesity is defined using BMI, but I'm not sure how it's classified in children.

Dr. Ali: yes, you are right, Obesity in children is defined using the Body Mass Index (BMI), which is calculated by dividing weight in kilograms by the square of height in meters, BMI= Wt./HT2., then the BMI is interpreted using age- and sex-specific **centile charts**.

According to NICE guidelines, the classified as :

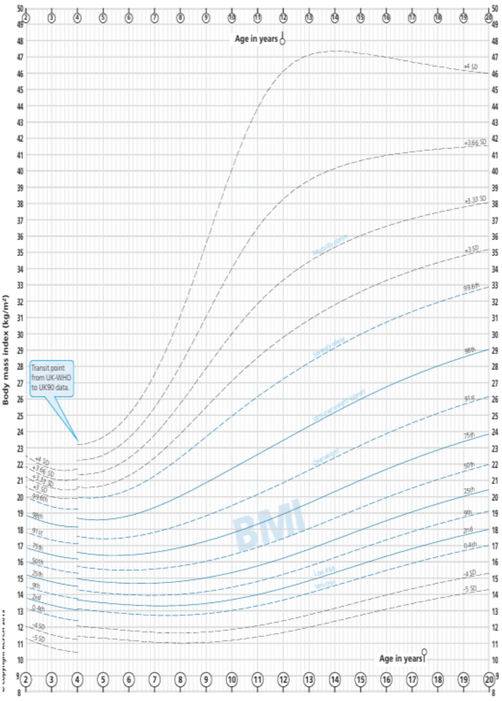
- **Overweight**: BMI at or above the 91st centile
- **Obese**: BMI at or above the 98th centile
- **Severely obese**: BMI at or above the 99.6th centile

In this case, a BMI of 33 places the child well above the 99.6th centile, indicating severe obesity. Would you like me to show you how to plot this on a growth chart?

Bayan: Yes please, I've always found that part confusing.

Dr. Ali: That's perfectly normal. We'll go through it step-by-step.

We use the NICE growth charts for children **DRAW**
the BMI is plotted on the chart using age on the x-axis and BMI on the y-axis. With practice, you'll get the hang of it.



Bayan: What are the **common causes** of obesity in children?

Dr. Ali: Obesity in children can result from multiple factors:

There are 2 categories for obesity: *simple obesity, 2ry or pathological obesity*.
In ***Simple obesity*** there is imbalance between the calories intake and expenditure in this case the child takes more than required. This could be related to **Lifestyle Factors**: Poor diet and physical inactivity are significant contributors. **Psychosocial Factors**: Emotional stress and socioeconomic status can influence eating habits and activity levels.

While ***pathological obesity*** could be caused by

1. **Genetic Factors**: A family history, as in this case, increases risk.
2. **Endocrine Disorders**: Conditions like hypothyroidism or Cushing's syndrome, though less common, should be considered.
3. **Syndromes**: like Prader Willi, Laurence Moon biedle, Beckwith Weidman...
4. **Drugs**: lithium, depakin, CST.

Bayan: What **investigations** should we consider for this child? How can we know the cause of obesity?

Dr. Ali: Excellent thinking. For this child, we should assess for **complications**:

- **Blood Tests**:
  - Fasting glucose and HbA1c to screen for **diabetes**
  - Lipid profile to assess for **dyslipidemia**
  - Liver function tests for **non-alcoholic fatty liver disease**
  - Thyroid function tests if **hypothyroidism** is suspected
- **Blood Pressure Measurement**: Given the family history of hypertension.
- **Urinalysis**: To check for proteinuria or glycosuria.
- **Imaging**: An abdominal ultrasound may be indicated if **liver abnormalities** are suspected.

We can use a simple approach: "Screen for Metabolic, Cardiac, Renal, and Endocrine issues." Easy to remember.

Bayan: What **complications** are associated with childhood obesity? (why we are so concerned about obesity)

Dr. Ali: Several complications can arise:

- **Type 2 Diabetes Mellitus**
- **Hypertension**
- **Dyslipidemia**
- **Non-Alcoholic Fatty Liver Disease**
- **Orthopedic Issues**: Such as slipped capital femoral epiphysis.
- **Psychological Effects**: Low self-esteem and depression.
- **Sleep Apnea.**

Bayan: So, is there any prevention for obesity?

Dr. Ali: yeah, now there is surveillance for obesity in many countries, in Uk screening done at start of primary school they take the measurements and assess the BMI this helps to diagnose and early manage obesity.
also, they banned junk foods in schools most of schools now provide balanced healthy food for the children, they also provide educational programs for children and there parents.

Bayan: What is the relation between diabetes and obesity?

- **Obesity leads to insulin resistance.**
- **Insulin resistance** means the body's cells become less responsive to insulin, the hormone that helps regulate blood sugar levels. Which can cause type 2 DM. previously it was expected after 10 years but now it could present earlier.

Now, why do you think this child has **recurrent UTIs**?

Bayan: I'm not entirely sure.

Dr. Ali: No problem. Obesity can cause UTIs due to:

- Insulin resistance, which increases sugar in urine, promoting bacterial growth.
- Poor perineal hygiene, especially in children with excess weight.
- Incomplete bladder emptying due to abdominal pressure.

According to NICE guidelines, children with recurrent UTIs should undergo further evaluation, including:

- **Ultrasound**: To assess for structural abnormalities.
- **Urine Culture**: To identify causative organisms and guide antibiotic therapy.

Dr. Ali: Finally, let's talk about **management**. What would you suggest?

Bayan: I would suggest dietary changes and physical activity.

Dr. Ali: Excellent. That's the foundation. We also focus on behavioural support, involving the family, and regular follow-up. I can show you how to structure this in a management plan if you'd like.

Bayan: That would be amazing. Thank you so much, Dr. Ali.

Dr. Ali: You're doing great, Bayan. Keep asking questions—that's how you become an excellent clinician.

When we manage obesity, treatment of the cause is the mean pillar, we start by taking serial measurement and according to the results we will arrange **family centred program**.

Management should be multidisciplinary:

1. **Lifestyle Modifications**:
    - **Diet**: Encourage a *balanced diet* rich in fruits, vegetables, and whole grains.
    - **Physical Activity**: Aim for at least 60 minutes of *moderate to vigorous activity daily*, reduce sedentary life.
2. **Behavioural Support**: Involve the family in setting *realistic goals* and maintaining motivation.
3. **Medical Intervention**: Pharmacological treatments are generally not first-line in children and should be considered only under specialist guidance, in children *above 12 years of age.*
4. **Referral**: Consider referring to a *paediatric obesity specialist* or a multidisciplinary team if initial interventions are unsuccessful.
5. **Bariatric surgery**: could be done in *morbid obese children after reaching age of maturity* if all the measures failed.

Bayan: That means those children should be banned from any sweets and ice cream.

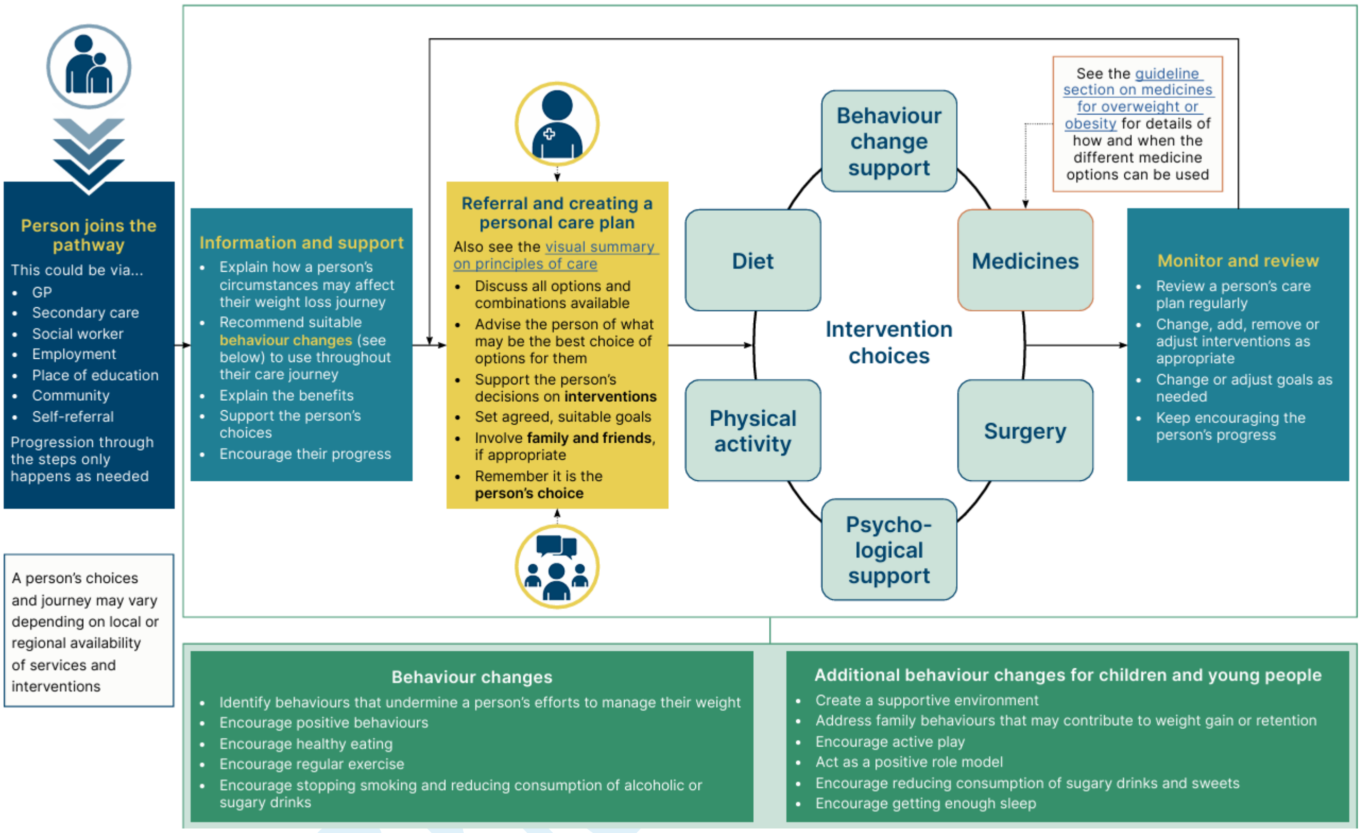
Dr. Ali: of course not we can't do full restriction we need to modify every thing to be lifestyle for the child not just management for short time.

Remember, early intervention is crucial in managing childhood obesity and preventing associated complications.

Bayan: Thank you, Dr. Ali. This discussion has been very informative.

Dr. Ali: Thank you, Bayan, I'm always here if you want to ask about anything else. Now could you summarise what we have said?

Overweight and obesity management: the potential care journey



Person joins the pathway

This could be via...

- GP
- Secondary care
- Social worker
- Employment
- Place of education
- Community
- Self-referral

Progression through the steps only happens as needed

A person's choices and journey may vary depending on local or regional availability of services and interventions

Information and support

- Explain how a person's circumstances may affect their weight loss journey
- Recommend suitable behaviour changes (see below) to use throughout their care journey
- Explain the benefits
- Support the person's choices
- Encourage their progress

Referral and creating a personal care plan

Also see the visual summary on principles of care

- Discuss all options and combinations available
- Advise the person of what may be the best choice of options for them
- Support the person's decisions on **interventions**
- Set agreed, suitable goals
- Involve **family and friends**, if appropriate
- Remember it is the **person's choice**

Intervention choices

- Behaviour change support
- Diet
- Medicines
- Physical activity
- Surgery
- Psychological support

See the guideline section on medicines for overweight or obesity for details of how and when the different medicine options can be used

Monitor and review

- Review a person's care plan regularly
- Change, add, remove or adjust interventions as appropriate
- Change or adjust goals as needed
- Keep encouraging the person's progress

Behaviour changes

- Identify behaviours that undermine a person's efforts to manage their weight
- Encourage positive behaviours
- Encourage healthy eating
- Encourage regular exercise
- Encourage stopping smoking and reducing consumption of alcoholic or sugary drinks

Additional behaviour changes for children and young people

- Create a supportive environment
- Address family behaviours that may contribute to weight gain or retention
- Encourage active play
- Act as a positive role model
- Encourage reducing consumption of sugary drinks and sweets
- Encourage getting enough sleep

Key points to remember:

Obesity Definition: BMI calculated as weight (kg) / height^2 (m^2); classified using age- and sex-specific centile charts.

Classification (NICE): Overweight (≥91st centile), Obese (≥98th centile), Severely Obese (≥99.6th centile).

Causes: Simple (lifestyle, psychosocial), Pathological (genetic, endocrine, syndromes, medications).

Investigations: Blood tests (glucose, lipids, liver, thyroid), BP, urinalysis, abdominal ultrasound.

Complications: Type 2 diabetes, hypertension, fatty liver, orthopedic issues, psychological impact, sleep apnea.

Relation to UTIs: Obesity leads to insulin resistance, poor hygiene, incomplete bladder emptying

Management: Multidisciplinary—lifestyle changes, family support, medical intervention (specialist-guided), potential bariatric surgery.

Constitutional short stature

Role: Dr Omar ST4 doctor.

Background information: Sleem is teenager 13 years old, found him self the shortest in his class. And shorter than his parents at the same age. His measurements and investigations found thet he has constitutional short stature.

Task: explain to Sleem his condition and answer all his concerns.

Sleem:
Doctor, I’m worried about my height. I’m 13, but I’m shorter than my friends and even shorter than my parents.

Dr. Omar:
I understand, Sleem it could be distressing for you. But when we checked your measurements and plotted it on the appropriate charts, we found that you have a condition known as **Constitutional Short Stature**. It’s a normal growth variant where you might be shorter now but will most likely catch up later. Would you like me to explain it on the growth charts.

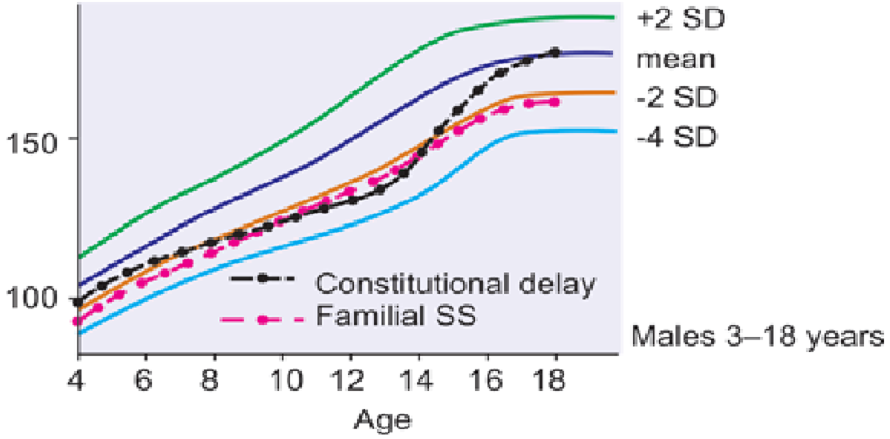
Sleem:
yes dr. please

Dr. Omar:
This is the hight growth chart. **DRAW** If we plot your height on a growth chart, it may fall around the 3rd percentile. That means out of 100 boys of your age, 97 are taller than you, but that’s okay because you are expected to catch up your hight sooner. And we compared this with the length of your parents as well, we found that you are shorter than your parents which omit the possibility of familial short stature, in which the child is short like his parents, but this is not your condition. This is very reassuring because it means you will reach adult hight as your parents.

Sleem:
But why is this happening to me?

Dr. Omar:
This usually runs in families. It carries no serious reason. It just means you are growing at a slower pace, but your body will eventually reach a normal adult height. Let me explain it by **drawing**
usually the children grow with increment like this and when they start their maturity they will have spurt in their growth.

In your type of growth in the start you grow like them then there is some plateau and lag in growth here then you catch your growth till you reach your normal adult hight.



Sleem:
What’s my expected hight?

Dr. Omar:
we will see your length on the centile chart and we will plot it on charts for expecting the adult hight it gives us hight which you could be 6 cm above or 6 cm below.

Sleem:
But I’m also worried about my maturity. My GP said I’m in Tanner Stage 2. What does that mean?

Dr. Omar:
Tanner staging is a way to assess the maturity its 5 stages from 1 to 5. 1 means no sign and 5 means full maturity. So, Tanner Stage 2 means you are in the early phase of puberty. You’re just starting to develop, but you have a lot of changes ahead, its good sign that you started your maturity. It means you will reach full maturity a bit later. Yeah, you are now slightly delayed because you were expected to be in tanner 3 or 4 but its assuring point that you already started.

Sleem:
Is there anything I can do to grow faster? I heard about growth hormone.

Dr. Omar:
Growth hormone is used for specific medical conditions, but it is not recommended for teens with normal hormone levels and Constitutional Short Stature. It is not a solution for you because you are healthy, and all your hormone levels are normal.

Sleem:
So, what should I do now?

Dr. Omar:
Continue to eat a balanced diet, exercise regularly, and get plenty of sleep. Track your height every few months. And most importantly, be patient it’s a matter of time, have positive enforcement all the time, concentrate on your tasks don’t think too much of your growth.

Sleem:
What should I tell my friends when they ask why I’m shorter?

Dr. Omar:
You can say, "I’m just a late bloomer. My height will catch up eventually." Or "Everyone grows at their own pace, and the Dr reassured me that I’ll catch later." and if you want after your permission, we can send formal letter to your school to explain your condition if you found any difficulty in that. Don’t worry at all we are all here to help you and we will be highly supportive for you, so don’t hesitate at any time to ask for our help.

Sleem:
Can stress affect my growth?

Dr. Omar:
Chronic stress can impact overall health, including growth. But occasional stress or worries won’t stop you from growing. If you found any difficulty to cope with that we can refer you to talking therapy they will help you manage your stress.

Sleem:
What if I don’t catch up in height?

Dr. Omar:

Most children with Constitutional Short Stature do catch up, but in rare cases, they may remain shorter than average. If your growth seems too slow, we can always do more tests.

Sleem:

Should I avoid certain foods?

Dr. Omar:

A balanced diet is most important. Avoid excessive junk food and sugary drinks. Focus on proteins, calcium, vitamins, and minerals for healthy growth.

Sleem:

Can exercising more make me taller?

Dr. Omar:

Regular exercise supports healthy growth, but it doesn't directly make you taller. However, it keeps your bones strong and your body healthy.

Sleem:

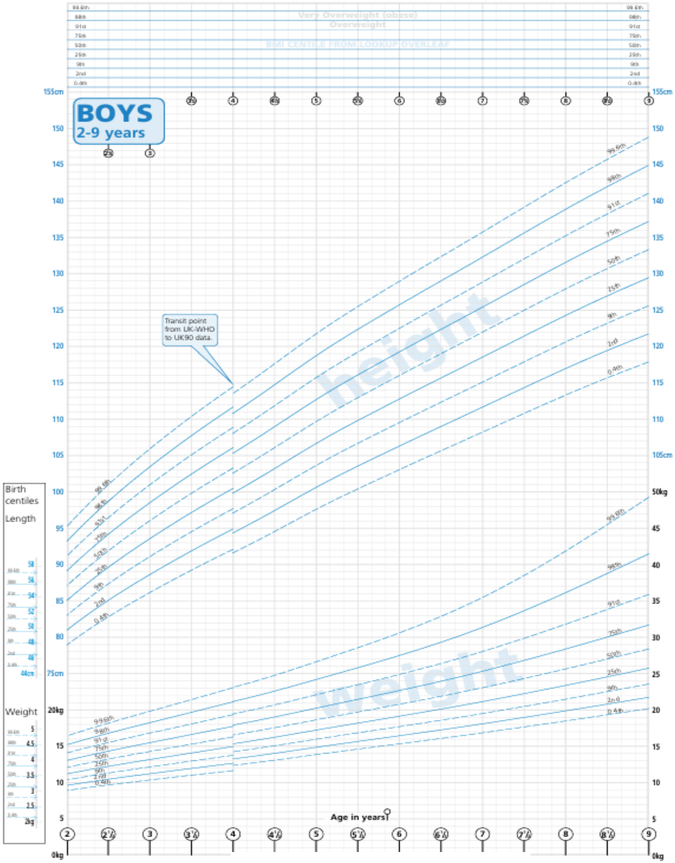
Thank you, Dr. Omar. I feel a lot better now.

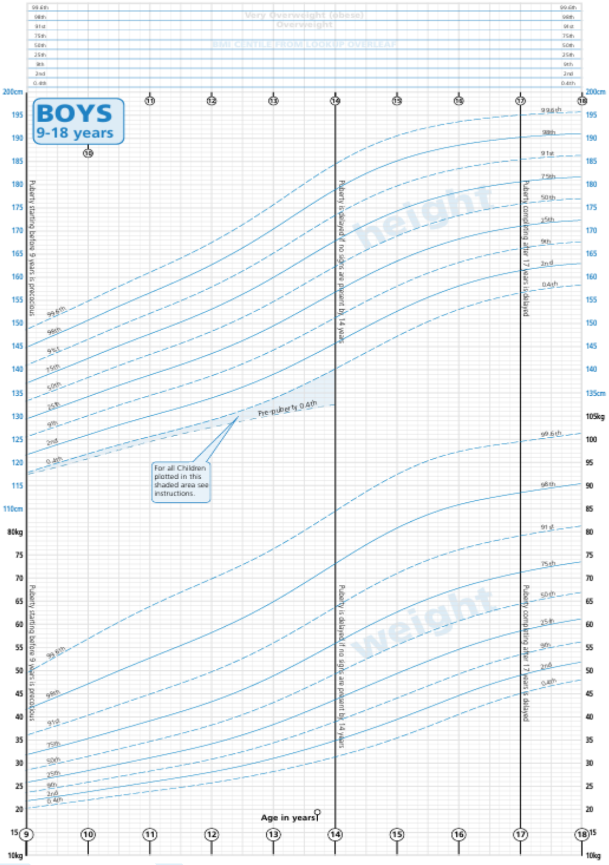
Dr. Omar:

You're welcome, Sleem. Remember, your height doesn't define you. You're doing great, if you want to ask any further questions we are always here. Now would you summarise what you got from our meeting today.

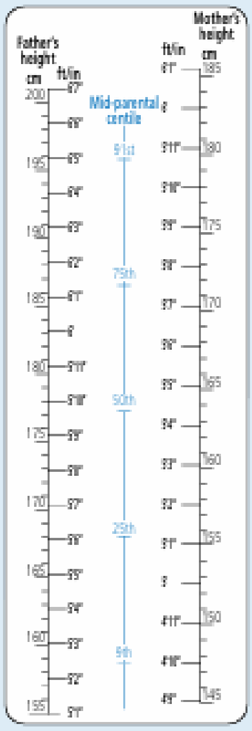
IMP key points:

- **Condition Explained**: The boy has **Constitutional Short Stature**, a normal growth variation where height is temporarily below average but is expected to catch up later.
- **Growth Chart Analysis**: His height is around the **3rd percentile**, indicating he is shorter than most peers now but is likely to reach a normal adult height, similar to his parents.
- **Puberty Stage**: He is in **Tanner Stage 2**, which means early puberty, with more growth and maturity expected ahead.
- **Growth Hormone Clarification**: Growth hormone treatment is not suitable because his hormone levels are normal.
- **Advice for Growth**:
  - Maintain a **balanced diet**, regular **exercise**, and sufficient **sleep**.
  - **Stay patient** and positive; growth takes time.
  - Avoid excessive **junk food**.
- **Handling Peer Questions**: He can tell friends he is a **"late bloomer"** and will catch up in height.
- **Stress Management**: Occasional stress won't stop growth, but chronic stress can impact health.
- **Follow-Up**: Regular monitoring of height, and reassurance that the doctor and team are available for support.





Parent Height Comparator



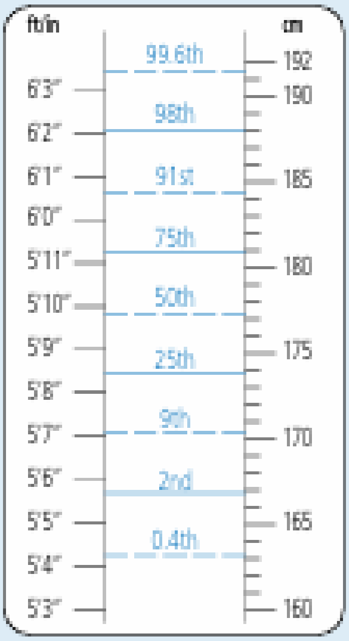
Father's height: ___________

Mother's height: ___________

Mid-parental Centile

- Plot the the Mother's and Father's heights on their respective scales and join the two points with a line. The mid-parental centile is where this line crosses the centile line in the middle.
- Compare the mid-parental centile to the child's current height centile, plotted on the adult height predictor centile scale.
- Nine out of ten children's height centiles are within ±two centile spaces of the mid-parental centile.

Adult Height Predictor



Predicted Adult Height

- Plot the most recent height centile on the relevant centile line and
- Read off the predicted adult height for this centile.
- Four out of five children will be within ±6 cm of this value.

Ambiguous genitalia

Role: Dr Hoda ST4 doctor.

Background information: A newborn has been delivered, but upon examination, it is challenging to determine the baby's sex due to ambiguous genitalia.

Task: You must discuss this condition with the mother Mrs Laila, providing a clear explanation and outlining the next steps in management and answer all her concerns.

Dr. Hoda:
Hello, Mrs. Laila. Thank you for coming in. First of all, congratulations on the birth of your beautiful baby. I know this is a very special and emotional time for you.

Mrs. Laila:
Thank you, doctor. Is everything alright with my baby? I don't know any thing about him they even didn't tell me he is boy or girl.

Dr. Hoda:
I'm here to tell you everything about your baby's health. Would you like any one to attend this meeting with you?
I'm sorry to tell you that, after examining your baby, we noticed that the private area doesn't clearly look typically male or female. This condition is medically known as 'ambiguous genitalia. Have you heard about it before?

Mrs. Laila:
How you couldn't recognise it's something very easy?

Dr. Hoda:
I know Mrs Laila it seems strange but some children after delivery we find it difficult to know, sometimes the baby genital area is swollen after delivery and when we wait some time and this swelling goes away we could know the baby is boy or girl, but some times also the genital area is not well defined even after subside of swelling a condition called ambiguous genitalia have you heard about it before?

Mrs. Laila:
No dr, what does that mean? Is my baby alright?

Dr. Hoda:
Your baby is otherwise stable and healthy. Ambiguous genitalia means that the appearance of the external genitalia makes it difficult for us to determine whether your baby is a boy or a girl. This can happen for various medical reasons, and it is not uncommon.

Mrs. Laila:
Why did this happen to my baby? Is it something I did?

Dr. Hoda:
I understand your feeling Mrs Laila, I know how much you're worried about your baby. It's important to know that this is not your fault. To know why this happened we need to know how the gender determines.

The gender determines firstly through the genes at the time of conception, each girl should have 2 identical sticks called XX and to be a boy the baby should have 2 different sticks called XY.

After that the certain chemicals secreted by the body called hormones secreted by the glands above the kidney responsible for full configuration of the organs, so girl's organ develops to form womb and boys develop balls. Any problem during this development could affect the gender determination.

Mrs. Laila:
What will happen now?

Dr. Hoda:
The first step is to carry out some tests to understand the underlying cause. This will include blood tests to look at genes and hormone levels, as well as imaging like jelly scan which is called ultrasound to examine internal organs, some test to check for salts and sugars in blood. We may also involve specialists such as paediatric gland dr who is called endocrinologists and gene dr who is called genetics to guide us. After finishing all of that we could assign the gender of the baby.

Mrs. Laila:
Will my baby be okay?

Dr. Hoda:
Our main goal is to ensure your baby's health and well-being, maintain all his vital signs. The results will help us determine the best course of action, and we will work together with you every step of the way. We understand that this is overwhelming, and we are here to support you and your family.

Mrs. Laila:
So now what should we write in the birth certificate, boy or girl?

Dr. Hoda:
I know Mrs Laila how it's important to you. But I'm sorry we need to delay the birth certificate registration till we finish all the investigations to be sure of the baby's gender.

Mrs. Laila:
What should I tell my parents?

Dr. Hoda:
I know its difficult time for you, you could have many foggy ideas right now, you can tell them that the doctors need some time to decide the gender of the baby when they finish some investigations.

Mrs. Laila:
What is the prognosis of this condition?

Dr. Hoda:
it depends on the cause if its just swelling it will subside by its own, some of them needs treatment for long time some not.

Mrs. Laila:
Is this condition is treatable?

Dr. Hoda:
Currently the child doesn't need any treatment until we know the reason and if there is problem about the private organ could be treated by cosmetic or plastic surgery, you child will be manged by large team including children dr, plastic surgery, gland dr, also the GP will be involved.

Mrs. Laila:
can you discharge us right now?

Dr. Hoda:
I know how desperately you need to be discharged, but I'm afraid we can't discharge your baby except after we do all the test for the child and making sure he is safe to go home, at this time we will discharge him immediately.

Mrs. Laila:
Thank you for explaining. What should I do now?

Dr. Hoda:
For now, continue caring for your baby as you have been. We'll arrange the necessary tests and keep you informed about each step. If you have any questions or need support, please do not hesitate to reach out. We are here for you. I'll provide you with trusted web sites if you want to read more about the condition.

Mrs. Laila:
Thank you, doctor. I appreciate your kindness.

Dr. Hoda:
You're welcome. Remember, we're here to support you and your baby throughout this journey.

IMP key points:

- **Ambiguous genitalia** – external genitalia that do not clearly appear male or female.
- This can sometimes be due to **swelling after birth**, but in some cases, it's due to a **developmental condition**.
- The cause is usually related to **genetic and hormonal factors** during development.
- Next steps include **blood tests** (genes, hormones, electrolytes) and **ultrasound imaging**.
- **Specialists** like endocrinologists and geneticists will be involved.
- The **gender assignment** will be done after all investigations are complete.
- **Birth certificate registration will be delayed** until gender is confirmed.
- The **prognosis depends on the cause** – it could resolve naturally or may require long-term treatment.
- Possible treatments may include **hormonal therapy** or **cosmetic/plastic surgery** later on.
- **Discharge is not possible** until all tests are done and the baby is confirmed to be safe.

Addisson's Disease

Role: Dr Adam Paediatric registrar
Background: Dalia 14 years old girl previously diagnosed with Addison's disease, now refusing to take mid-day dose of fludrocortisone as most of the time she is outside home at this time with her friends she is only compliant to morning and night doses only. Her centile charts show she is overweight. However, her antibodies are negative, and her blood tests are normal.
Task: Talk to Dalia, about her condition and importance of compliance to treatment and answer her concerns.

Dr. Adam:
Good afternoon, Dalia could you tell me what do you know so far about your condition?

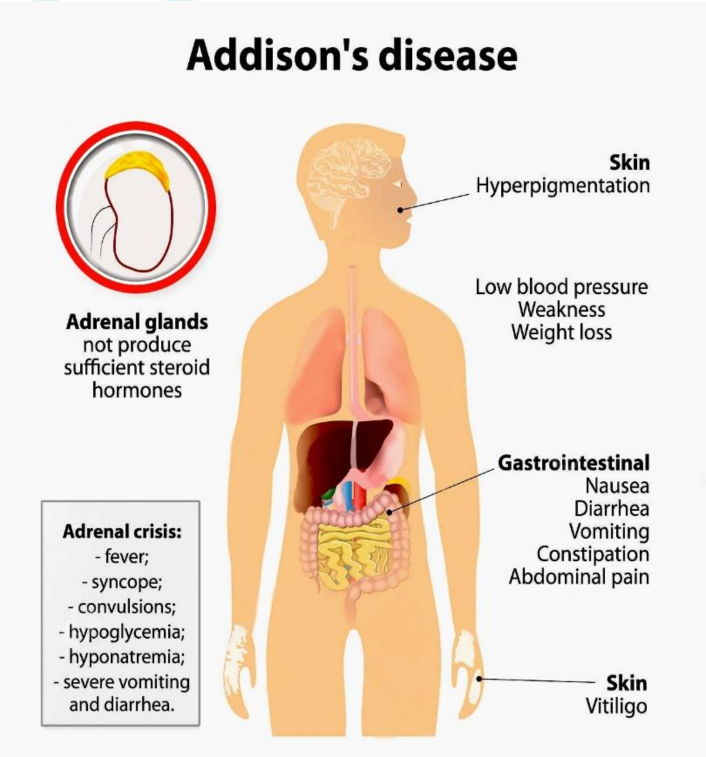
Dalia:
I've something called Addison but actually I don't know why I have it

Dr. Adam: DRAW
let me explain it to you Dalia. In Addison's disease, the problem is with your **adrenal glands** – two small glands that sit on top of your kidneys. These glands normally make chemicals called hormones like:

- **Cortisol** – helps your body respond to stress, maintain blood pressure, and balance energy.
- **Aldosterone** – helps control the salt and water balance in your body, which affects blood pressure.

When you have Addison's disease, your adrenal glands don't make enough of these hormones, especially **cortisol**.

Most of the time, Addison's disease is caused by your **defence system** attacking the adrenal glands by mistake instead of attacking organisms – this is called an **autoimmune condition**. Less commonly, it can be caused by things like infections or damage to the glands.


Addison's disease
Adrenal glands
not produce
sufficient steroid
hormones
Skin
Hyperpigmentation
Low blood pressure
Weakness
Weight loss
Gastrointestinal
Nausea
Diarrhea
Vomiting
Constipation
Abdominal pain
Skin
Vitiligo
Adrenal crisis:
- fever;
- syncope;
- convulsions;
- hypoglycemia;
- hyponatremia;
- severe vomiting
and diarrhea.

Dalia:
Is it treatable condition?

Dr. Adam:
yeah Dalia we usually prescribe cortisone tablets and other tablets to replace the original production of hormones. This is the best way of management.

Dalia:
Why it's important to take these medications?

Dr. Adam:
the medications is very important to tailor what is the original gland was doing. Without this medication you will experience symptoms like fatigue, weakness, low blood pressure.

Dalia:
yeah, they already gave me this replacement but, I have problems with taking this cortisone in mid-day. I only take it at early morning and at night.

Dr. Adam:
would you tell me why you have problem with the mid-day dose?

Dalia:
because I don't want anyone to know about my condition.

Dr. Adam:
I can understand your concern but actually Dalia its very important to take your medications, without it you could have something called Addisonian crises which is life threatening condition in which the patient could have very low blood pressure and very low sugar levels, so weighing risk vs benefits the risk here is greatly more, and I'm sure you don't like to experience any of this.

Dalia: Why should I inform people about my condition?

Dr. Adam:
Firstly Dalia you need to wear medical bracelet to allow any one to help you if you experienced any emergency, so it's the same for your close contacts they have to know about your condition and know how to deal with to be able to save your life because in Addison crisis time counts alot.

Dalia: For how long should I take this medication?

Dr. Adam:
Dalia I'm sorry to tell you this medication is lifelong it's not possible to stop it at any time.

Dalia:
I don't want to take these medications because I'm already chubby and cortisone will increase my weight

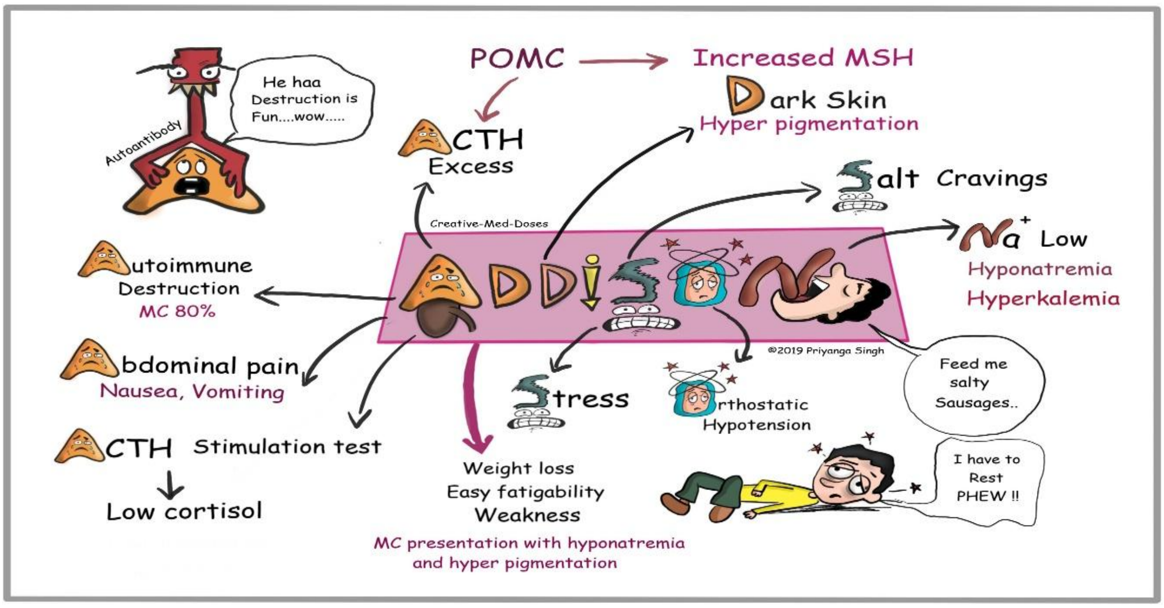
Dr. Adam:
I appreciate your worries about your weight Dalia but medications for Addison shouldn't affect your body weight because its just replacement of the hormones already secreted by the body. Which is not the case with people who take excess cortisone.

Dalia:
So how could I manage taking these medications?

Dr. Adam:
This is very good question Dalia, you need to take your medication exactly as been prescribed by the team especially in the days when you have any infection or being sick you have to be vigilant to your medications and some times during the time of infection your body needs more cortisone so they may prescribe excess dose for sick days you need to take it and its important to stay hydrated which means you have to receive good amount of water also and monitor your symptoms and contact your health care provider if you feel sick.

Dalia:
Thank you for this information, Dr.

Dr. Adam:
Make sure Dalia we are all here for you and at any time if you have any questions or concerns don't hesitate to talk to us. I'll provide you with trusted websites and leaflets to read more about Addisson disease, now because we discussed a lot of information would you mind summarising what you get from this meeting.



Autoantibody
He haa Destruction is Fun....wow.....
POMC
Increased MSH
Dark Skin
Hyper pigmentation
ACTH Excess
Salt Cravings
Creative-Med-Doses
Na+ Low
Hyponatremia
Hyperkalemia
Autoimmune Destruction
MC 80%
ADDISON
Abdominal pain
Nausea, Vomiting
©2019 Priyanga Singh
Feed me salty Sausages..
Stress
Orthostatic Hypotension
ACTH Stimulation test
Low cortisol
Weight loss
Easy fatigability
Weakness
I have to Rest PHEW !!
MC presentation with hyponatremia and hyper pigmentation

Hashimoto thyroiditis

Role: Dr Ziena ST4 doctor.

Background information: 15 years teenager girl has been diagnosed with Hashimoto's thyroiditis. You noticed she hasn't been coming to get her medication refills. When you spoke with her, she said she doesn't want to continue taking the medication. She had symptoms of hypothyroidism before, but now she feels fine. It's important to talk to her about her condition and explain why ongoing treatment is still necessary, even if she doesn't have symptoms right now.

Task: Talk to Salma about her condition and explain why ongoing treatment is still necessary, even if she doesn't have symptoms right now and answer all her concerns.

Dr. Zeina:
Hello Salma I'm glad to see you today. I'm here today to discuss with you about your condition, but before we start are you waiting for any one to be with you?

Salma:
No, Dr

Dr. Zeina:
So I know you have been diagnosed with Hashimoto thyroiditis; can you tell me what's your last updates about your condition?

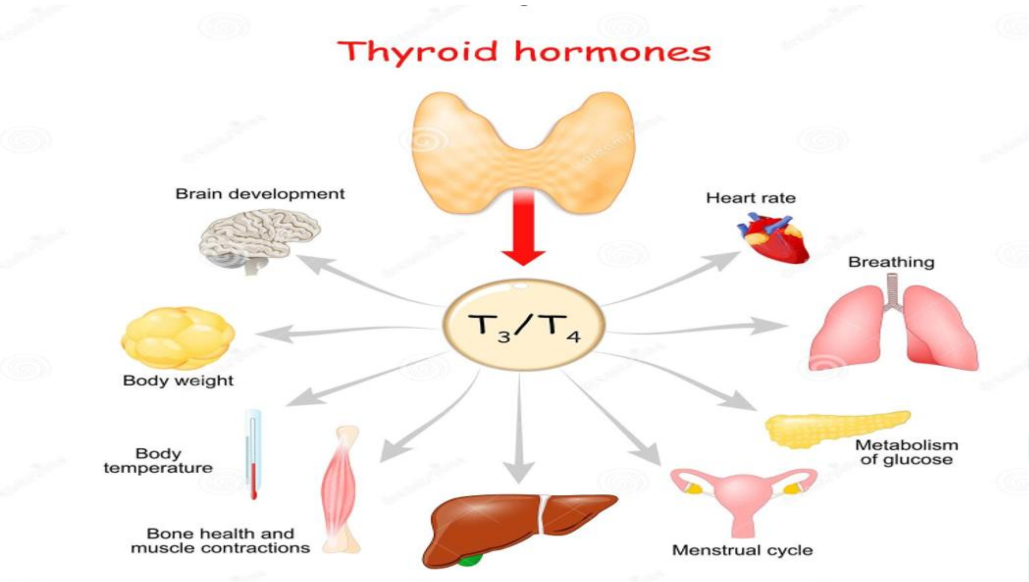
Salma:
Yeah Dr, since diagnosis they prescribed medication for me but at this time I was having symptoms like constipation, cold intolerance, but now I'm fine I don't have any symptoms, so I stopped taking this medication, I'm fed up with that.

Dr. Zeina:
I can understand your feeling Salma, I know how much it's difficult to keep compliant on daily medications, but to discuss about this I just want to confirm what's your knowledge about your disease?

Salma:
I know it's a problem with my gland, but I don't know why I'm the only person to have that?

Dr. Zeina:
I know Salma it may be frustrating but let me explain to you more about the condition to understand why you have it. Can you follow my drawing **DRAW**
This butterfly gland in the front of our neck is called Thyroid gland, it secretes certain chemicals called Hormone, this hormone is called thyroxin is responsible for regulating our energy including regulation of our heart beats, our gut and our brain, it's very important no one can live without this hormone.

What happened to you is that without any reason your body defence system instead of attacking microbes, it attacked the thyroid gland, this caused the gland unable to secrete the usual amount of hormones. So, from the importance of this thyroxin can you imagine what could happen to your body without thyroxin?



Salma:
No Dr I don’t know but I don’t think it’s a big deal.

Dr. Zeina:
It seems like that but actually its function is very important it will markedly affect your activity you will feel tired all the time and tend to sleep more, unable even to manage your daily activity. It can affect your performance in school, you can gain weight very easily, can change your bowel habits causing constipation as well, there is a lot of symptoms that could emerge from decrease this hormone level. I’m sorry to tell you also it could lead to life threatening situation. And I don’t think you want to experience any of these. Am I right?

Salma:
For how long should I take this medication?

Dr. Zeina:
This is very good question from smart girl like you, in most cases this medication will be life long as the body stop or decrease the secretion of this hormone and we need to compensate for it by taking this medication.

Salma:
But sometimes I forget to take the medication, it’s difficult to remember it daily, I’m not a robot.

Dr. Zeina:
I can understand that Salma, but we usually recommend taking the medication early in the morning on empty stomach so how about linking your medication with one of your morning activities like brushing your teeth or combing your hair. You can also set reminder on your phone and put the medication beside your bed to remember to take it when you wake up. But

the most important thing is to but it as a priority because your life is a priority, How do you find the idea?

Salma:
Ok, I don't want any one to know about my condition.

Dr. Zeina:
I can understand Salma your privacy is important, and we will keep your confidentiality but its important if you felt comfortable to talk to someone close to you it will be beneficial for you to give you support. And you may need to wear bracelet to let doctors know about your condition so they can help you rapidly if you faced any acute condition.

Salma:
Is their any complications or side effects from this medication because sometimes I feel not ok?

Dr. Zeina:
its generally safe medication if taken with the appropriate dose as it is just replacement to our body secretion the side effects could only emerge if you have taken wrong dose, but if you followed your recommended dose its unlikely to cause any side effects.

Salma:
ok dr thank you I'll try to comply to the medication.

Dr. Zeina:
That's great Salma its very good decision, so now because we've discussed a lot of things could you summarise to me what did you get from this meeting?

Imp key points about Hashimoto thyroiditis:

- **Autoimmune Disorder**: The immune system attacks the thyroid gland.
- **Causes Hypothyroidism**: Leads to reduced production of thyroid hormones (especially thyroxin).
- **Essential Hormone**: Thyroxin regulates energy, metabolism, heart rate, digestion, and brain function.
- **Common Symptoms**: Fatigue, weight gain, cold intolerance, constipation, depression, dry skin.
- **Lifelong Condition**: Usually requires lifelong hormone replacement therapy (levothyroxine).
- **Diagnosis**: Based on symptoms, blood tests (TSH, T4, thyroid antibodies).
- **Treatment is Safe**: When taken in correct dose, hormone replacement is safe and effective.
- **Non-treatment Risks**: Can lead to severe complications, including myxedema (life-threatening).

Insulin Regimens in Pediatrics

Role: You are a pediatric registrar.

Background information:

Reda is a new medical student rotating through pediatrics. He has seen several children with diabetes and was surprised to learn there are multiple insulin regimens. He has asked you why different children use different regimens.

Task:

Explain the different insulin regimens used in pediatric diabetes. Discuss the types of insulin used, how each regimen works, advantages, disadvantages, complications, and how to monitor and choose each regimen.

Registrar:
Hi Reda, how did your first week in pediatrics go?

Reda:
It was really interesting! I saw several children with diabetes, and I was surprised by the number of different insulin regimens.

Registrar:
That's a great observation. Different regimens are tailored to each child's age, lifestyle, family ability, and glucose control.

Reda:
Could you explain the main regimens and why we use them?

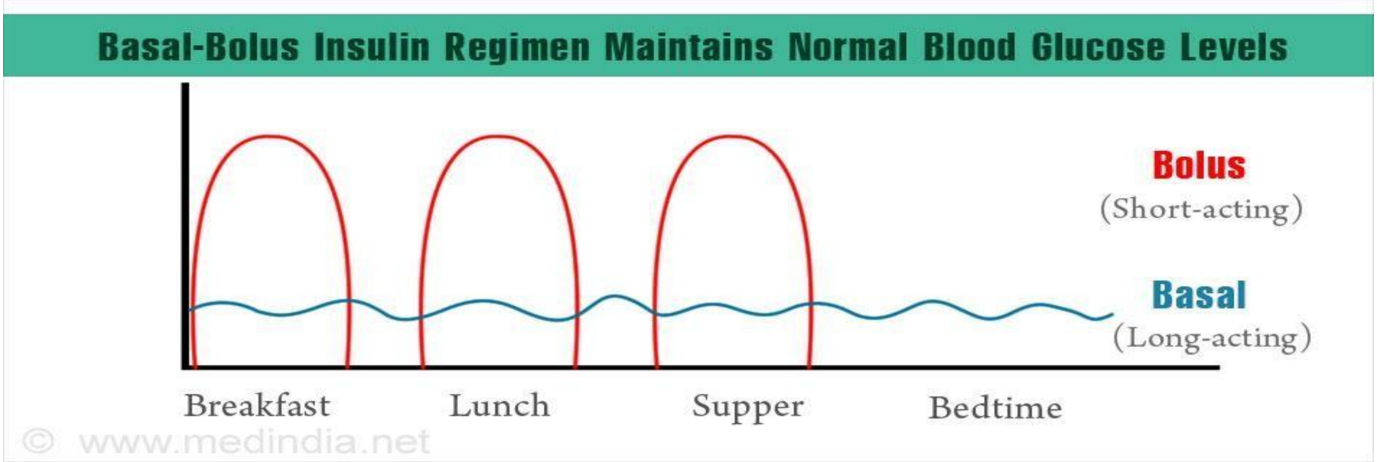
Registrar:
Sure. We commonly use three types: basal-bolus, twice-daily mixed insulin, and insulin pump therapy. Each has pros and cons.

Reda:
Why not just use one standard method for everyone?

Registrar:
Because children have different routines, meal patterns, and needs. Let's go through each one and I'll show you some example graphs.

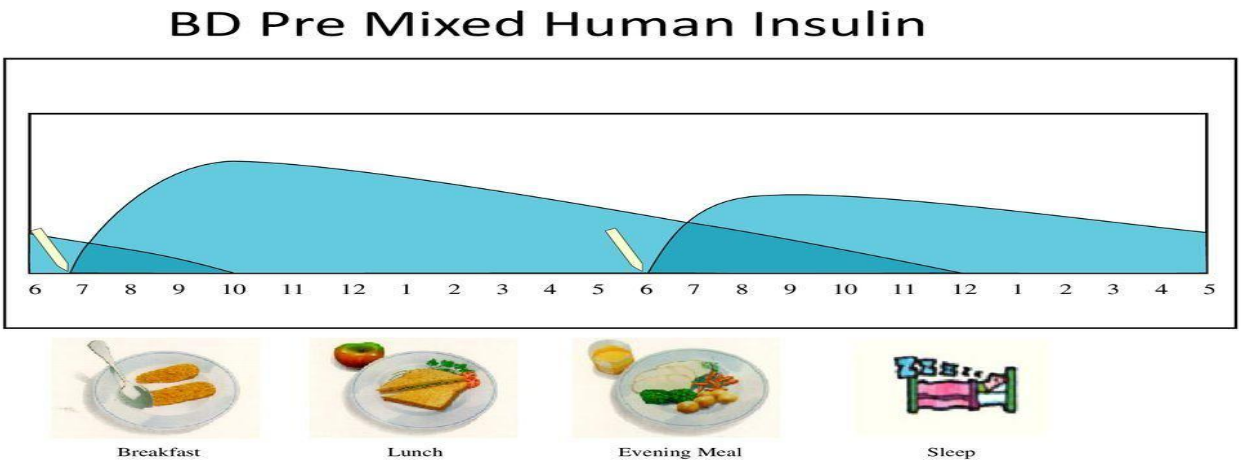
Reda:
That would be amazing. What's basal-bolus?

Registrar:
It's the most flexible. It mimics the natural pattern of insulin. Children get long acting basal insulin once or twice a day and short-acting bolus insulin with meals.



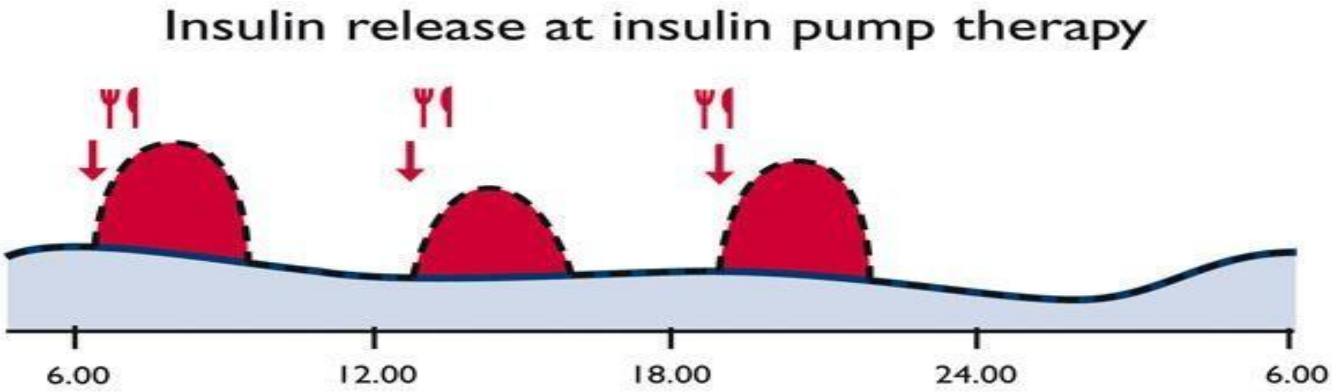
Reda:
And the two-injection one?

Registrar:
That's simpler, used in younger children. It's two daily injections of mixed insulin — part long-acting, part short-acting.



Reda:
What about insulin pumps?

Registrar:
Pump therapy uses rapid-acting insulin continuously through a device. It gives a basal rate plus extra doses (bolus) with meals.



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Registrar:
It’s a closed-loop system — the pump adjusts insulin automatically based on continuous glucose monitoring.

Reda:
How do we choose between these?

Registrar:
Based on glucose control, age, school schedule, ability to calculate carbs, and family preference. It’s a team decision.

Reda:
How do we monitor them?

Registrar:
With finger-prick glucose testing and increasingly, continuous glucose monitors (CGMs).

Reda:
What are the advantages and disadvantages of the basal-bolus regimen?

Registrar:
Advantages include flexibility with meals, better glucose control, and it mimics natural insulin release.

Disadvantages: more injections daily, require carb counting and consistent monitoring.

Reda:
What about the twice-daily regimen?

Registrar:
It’s simple and easier for young children or schools. But it’s rigid — meals must match insulin peaks. It can cause mid-morning or overnight lows.

Reda:
And the insulin pump?

Registrar:
Advantages: very flexible, great control, fewer hypoglycemic episodes.

Disadvantages: expensive, requires training and discipline. Risk of DKA if insulin delivery is interrupted.

Reda:
What are the contraindications to using a pump?

Registrar:
Poor family engagement, poor hygiene, or inability to monitor sugars properly. NHS guidance stresses education and commitment.

Reda:
And who manages the child's diabetes?

Registrar:
The paediatric diabetes team: consultant, diabetes nurse, dietitian, psychologist, school liaison nurse. Multidisciplinary care is essential.

Reda:
What types of insulin are used in each regimen?

Registrar:
Basal-bolus uses long-acting (e.g., glargine) and rapid-acting (e.g., lispro). Twice-daily uses premixed insulins. Pumps use only rapid-acting insulin.

Reda:
How is the artificial pancreas different from the pump?

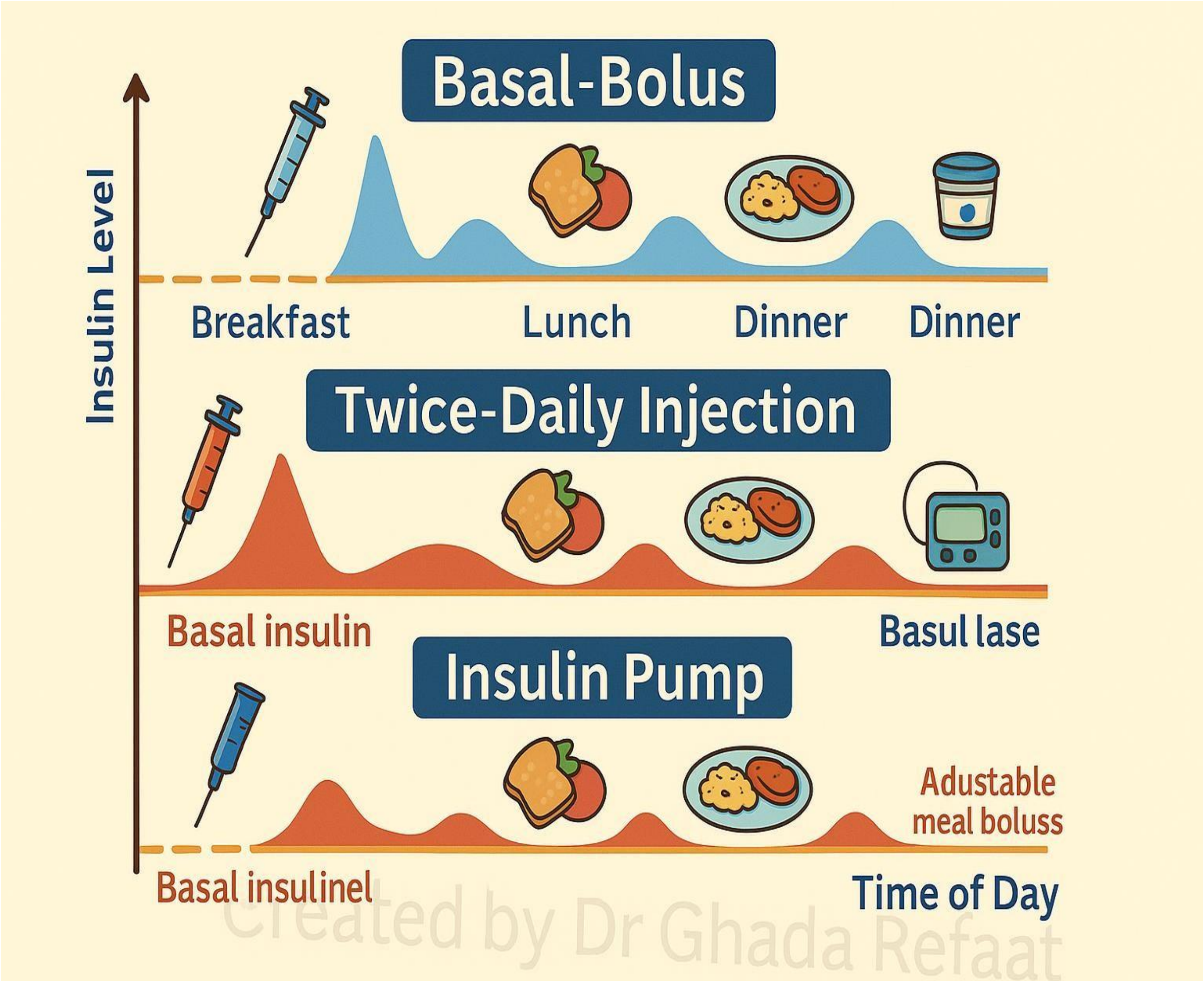
Registrar:
The pump gives fixed basal rates and boluses; artificial pancreas auto-adjusts using CGM feedback — a closed-loop system.

Reda:
Are there any contraindications to the twice-daily regimen?

Registrar:
Yes — children with irregular meal times or active adolescence where flexibility is essential.

Reda:
How do you calculate insulin in each regimen?

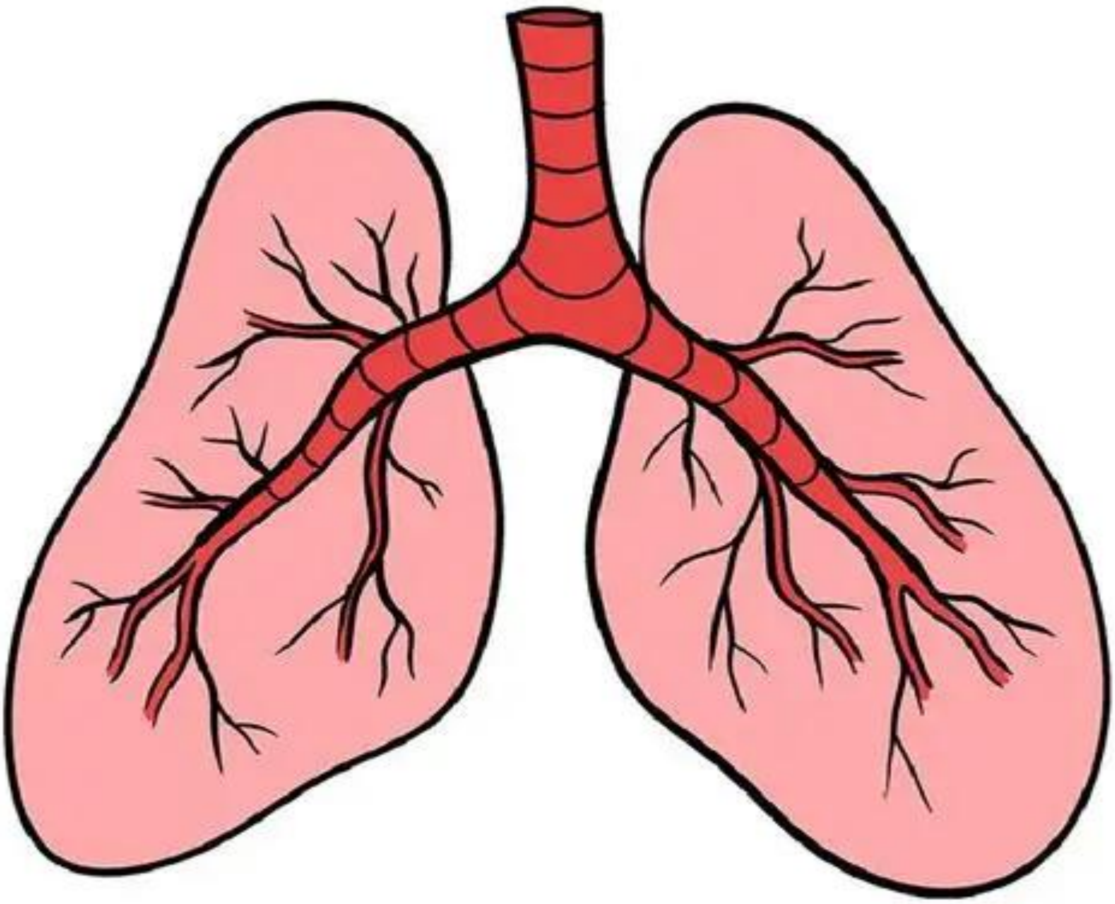
Registrar:
In basal-bolus: total daily dose (TDD) is split into 50% basal and 50% bolus. In pump: basal is set per hour, bolus is based on carb ratio and correction factor. Twice-daily regimens use body weight (e.g., 0.5–1 units/kg/day) split into morning and evening doses.


Basal-Bolus
Insulin Level
Breakfast
Lunch
Dinner
Dinner
Twice-Daily Injection
Basal insulin
Basul lase
Insulin Pump
Adustable
meal boluss
Basal insulinel
Time of Day
Created by Dr Ghada Refaat

DR.

RESPIRATORY

da Refaat



Cleft lip and Palate

Role: **Dr Hanaa Paediatric registrar**
Background: **Mrs Ola pregnant lady after having her ultrasound scan requested to see pediatric dr as she was told that her baby girl has cleft lip and palate, she is so confused as its her first time to hear about this she don't even understand what is cleft lip and palate is and how it could affect her daughter.**
Task: **Talk to Mrs Ola, about cleft lip and palate explain the hole condition and how it will be manged after birth and answer her concerns.**

Dr. Hanaa:
Hello Mrs. Ola, it's lovely to see you. How have you been? How is your pregnancy going?

Mrs. Ola:
Not so well, Doctor. I had an ultrasound today, and they told me that my baby girl has something wrong with her face. They called it "cleft lip and palate." I'm very upset and scared.

Dr. Hanaa:
I'm so sorry to hear that, Mrs. Ola. I can only imagine how upsetting this must be for you. Please know that you're not alone—I'm here for you, and we will walk through this together. Would you like someone to be here with you during this conversation?

Mrs. Ola:
No, thank you. I'm okay.

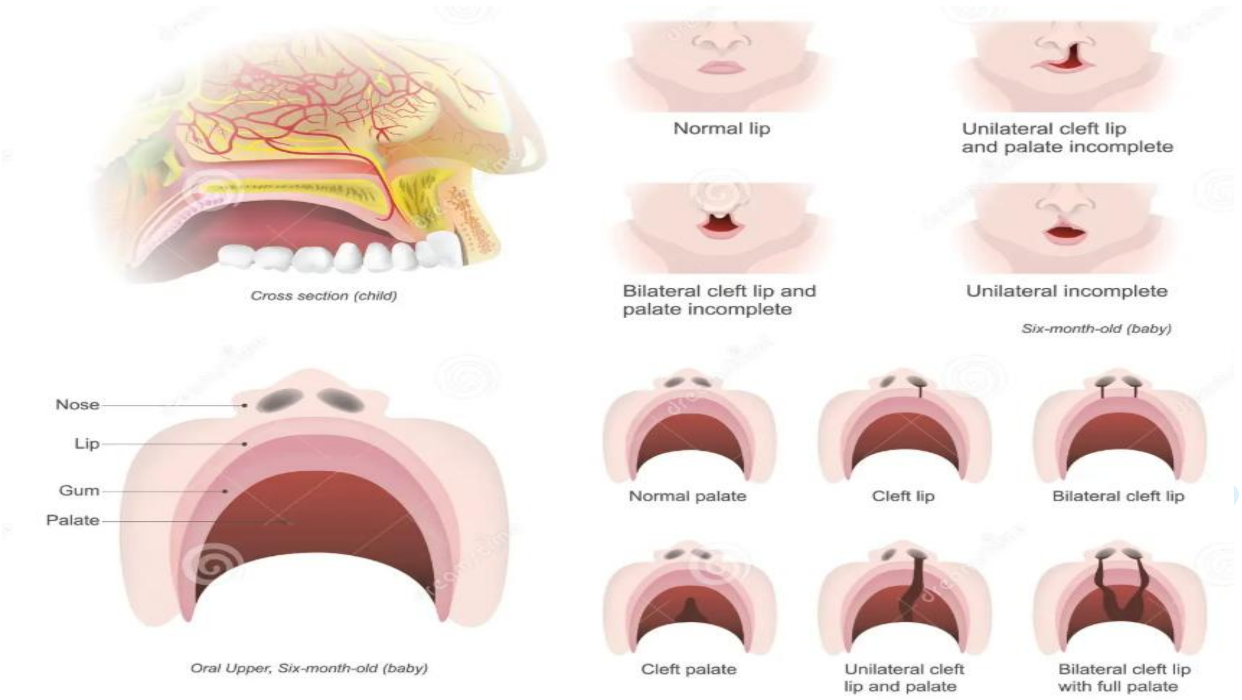
Dr. Hanaa:
Alright. Can I ask—what have you been told so far about cleft lip and palate?

Mrs. Ola:
Honestly, Doctor, I don't know anything about it. I'm just really worried.

Dr. Hanaa:
That's completely understandable. Let me explain gently, and I'll even show you a drawing to help make it clearer. **DRAW**

A **cleft lip** means there is a small opening or gap in the upper lip. For some babies, it's just a small split, and for others, it can be a wider gap that extends up toward the nose. It can be on one side, or on both sides.

A **cleft palate** is when there is a gap in the roof of the mouth, the part that separates the mouth from the nose. This can affect how a baby eats, speaks, or hears.This happens very early in pregnancy, when the baby's face is forming. The tissues of the lip and mouth are supposed to come together and close, but sometimes they don't fully join—and that's when a cleft occurs.


Cross section (child)
Normal lip
Unilateral cleft lip and palate incomplete
Bilateral cleft lip and palate incomplete
Unilateral incomplete
Six-month-old (baby)
Nose
Lip
Gum
Palate
Oral Upper, Six-month-old (baby)
Normal palate
Cleft lip
Bilateral cleft lip
Cleft palate
Unilateral cleft lip and palate
Bilateral cleft lip with full palate

Mrs. Ola:
But why did this happen to my baby? Did I do something wrong?

Dr. Hanaa:
I'm really glad you asked that. Please let me reassure you: **this is not your fault**. Many mothers feel this way, but the truth is that **we don't always know why clefts happen**.

There are some factors that may increase the chances, like:

- A lack of folic acid in the early stages of pregnancy
- A family history of cleft lip or palate
- Health conditions like diabetes, or exposure to certain medications or smoking during pregnancy

Sometimes it can be part of a genetic condition, but often it happens by itself. We will check the baby carefully after birth to understand more. But again, I want you to know—**you did nothing wrong.**

Mrs. Ola:
What kind of problems will my baby face? Will she suffer?

Dr. Hanaa:
It's completely okay to worry. Let's talk through what might happen, and how we will support you and your baby every step of the way.

- Some babies with cleft lip or palate may have **feeding difficulties**. They might not be able to breastfeed or use a regular bottle easily because they can't create a strong seal with their mouth.

DR. Ghada Re

But don't worry—our **breastfeeding and feeding specialists** will work closely with you. There are **special bottles and techniques** that make feeding much easier.

- Some children may have more **ear infections**, which can affect hearing. That's why our **ear, nose, and throat (ENT) team** will monitor her closely.
- There can also be **dental issues**, like missing or misaligned teeth. A **pediatric dentist** will help care for her teeth as they grow.
- Some children may have **speech difficulties**, but with the help of **speech and language therapists**, most children make great progress—especially after surgery.

Mrs. Ola:
Can it be treated? And when?

Dr. Hanaa:
Yes, absolutely. Cleft lip and palate **can be treated with surgery**, and we have excellent outcomes with today's procedures.

- Surgery to repair a **cleft lip** is usually done when the baby is around **3 to 6 months old**.
- Surgery for the **cleft palate** is usually done between **6 and 12 months old**.

Before and after the surgeries, our entire team will support you:

- A **feeding team** will help with feeding
- An **ENT doctor** will monitor her hearing
- A **dentist** will care for her teeth and mouth
- A **speech therapist** will help her learn to speak clearly

You are never alone. We'll walk with you through each stage of your child's growth.

Mrs. Ola:
I'm still very worried about how her face will look.

Dr. Hanaa:
That's completely natural, and your feelings are so valid. Many parents feel the same way. But I want to reassure you: **with today's medical advancements**, the surgeries are done using **cosmetic techniques** that leave **minimal scarring**.

Most children grow up with **a normal facial appearance**. In fact, the scar is often just a **thin line** that fades over time and becomes barely noticeable as the child grows.

Dr. Hanaa:
Mrs. Ola, your baby will be beautiful, and she will be surrounded by love, care, and expert

support. You’re already doing an amazing job by asking questions and being there for her. And we’ll be with you every step of the way. I’ll give you some trusted websites to read more about the condition and you can find pictures of babies before and after surgery as well it will reassure you, now I can summarize to you what we have talked about today.

Most Imp Points

- **Definition:**
  - Cleft lip: Opening in the upper lip.
  - Cleft palate: Opening in the roof of the mouth.
- **Causes:**
  - Often unknown.
  - Risk factors: folic acid deficiency, family history, maternal diabetes, smoking, medications.
  - Not the parent's fault.
- **Possible Complications:**
  - Feeding difficulties.
  - Frequent ear infections and hearing issues.
  - Dental problems.
  - Speech delays (may improve with therapy).
- **Treatment:**
  - Surgery for cleft lip: 3–6 months of age.
  - Surgery for cleft palate: 6–12 months of age.
  - Ongoing support from feeding team, ENT, dentist, and speech therapist.
- **Appearance:**
  - Modern surgery results in minimal scarring.
  - Most children have a normal appearance as they grow.
- **Support:**
  - Continuous medical and emotional support is available for the child and family.

Trachea oesophageal fistula

Background information: A full-term baby was delivered with a history of polyhydramnios during pregnancy. After birth, frothy secretions were observed coming from the mouth. An attempt to pass a nasogastric (NG) tube failed as it did not reach the stomach, raising suspicion of tracheoesophageal fistula (TEF).

Role: Dr Adam paediatric registrar
Task: Discuss with the mother Mrs Sara about the condition of her baby Ali and its management.

Dr. Adam:
Good morning, Mrs Sara, congratulations for your baby. Hope you feel better now.

I'm here today to discuss with you about your baby Ali's condition, do you need any one to attend this meeting with you?

Mrs. Sara:
No dr I'm here alone.

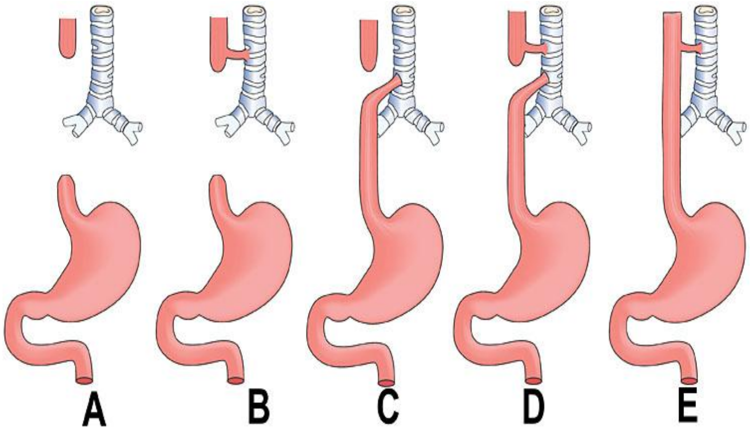
Dr. Adam:
Can you tell me what you know so far about your baby?

Mrs. Sara:
I did all my antenatal visits. They said there was more fluid than usual but didn't explain why. Now, when I tried to feed my baby, he had choking episodes, and they took him to the intensive care unit. I don't know why—I'm really worried. No one told me what is the problem.

Dr. Adam:
I appreciate your concern. That's why I'm here to explain. We suspect your baby has a condition called **tracheoesophageal fistula (TEF)**. Have you heard of this before?

Mrs. Sara:
No Dr what does that mean?

Dr. Adam:
I'll explain it to you please follow my drawing **DRAW**
There are several types of TEF, but the most common one involves a problem with the connection between the **oesophagus** (food pipe) and **trachea** (windpipe). Normally, the oesophagus carries food to the stomach. In this condition, the upper oesophagus ends in a pouch and doesn't connect to the stomach (oesophageal atresia), and there may be a fistula (abnormal connection) between the lower oesophagus and the trachea. (type C)



this makes air to pass through the windpipe to the lower part of oesophagus and stomach, the stomach acid to pass to the windpipe causing chocking. So, this condition should be treated surgically.

Mrs. Sara:
OMG, so he was born with this? Why wasn't it detected during antenatal care? Could it be because of the excess water they found?

Dr. Adam:
You're right to be concerned. Unfortunately, this condition often **cannot be seen on ultrasound**. The excessive amniotic fluid (polyhydramnios) was a sign, but not a definitive diagnosis. But this with the frothy secretions coming from the baby's mouth and frequent chocking make us suspected this condition. So we tried to pass a tube into the stomach from his mouth but we found it get coiled in the upper part of the oesophagus.

Mrs. Sara:
But Dr I'm feeling terrible, why this happened to my baby?

Dr. Adam:
I understand your feelings, but this can occur to any baby during the development the esophagus during pregnancy. But actually, the **Exact cause is unknown**. Sometimes associated with **genetic syndromes** or **other anomalies** (spine, kidneys, heart). Often occurs **sporadically** without a family history.

Mrs. Sara :
But how it could be treated?

Dr. Adam:
firstly, we will stabilise Ali's condition by suctioning this secretion to avoid chocking, we will keep him fasting and give nutrient fluids through blood conduit.

Next if their any sign of inflammation we could start antibiotic to him. Then then we will go directly foor surgery.

The goal of surgery is to repair this abnormal connection between the oesophagus and wind pipe and then connect the two parts of the oesophagus together.

But actually, the steps of surgery depend on the type and degree of gap between the 2 parts of the oesophagus. In some situations, its done in one step and sometimes it needs multiple steps.

Mrs. Sara:
But what is the outlook of this condition?

Dr. Adam:
I understand your worries Mrs Sara After surgery; your baby will be monitored in the **ICU** to make sure he can breathe well and begin feeding. The recovery depends on how complex the surgery is, but our team will be with you every step of the way. The surgical team will also discuss everything in detail before proceeding.

The outlook varies depending on different factors: severity of the condition, presence of any associated anomalies, effectiveness of treatment, also the proper function of the oesophagus and windpipe after surgery.

Mrs. Sara:
Dr what could be the complications of this surgery?

Dr. Adam:
Generally babies after surgery can breathe and eat freely with some difficulties may be present.
there could by some tightness in the oesophagus which sometimes need further widening, sometimes they could have some regurge when small amount of feed come up again from the stomach to the oesophagus. But I want to reassure you that we will always be with you we will keep monitoring your baby until we make sure he is doing well.

Mrs. Sara:
now what is the next step?

Dr. Adam:
after stabilizing your baby we'll first do more imaging, including **MRI or X-rays**, to understand the exact structure and confirm the diagnosis. Some blood test will be done then, we will inform anaesthesia dr who will put your child to sleep during the operation and the surgical team who will discuss with you in more details the procedure and its possible outcomes.

Mrs. Sara:
Ok Dr thank you for this information.

Dr. Adam:
Remember Mrs Sara we are all here to support you and Ali. I'll give you trusted web sites to read more about this condition and at any time if you need to ask about any thing regarding Ali we will be all here for you. No as we discussed a lot of information can you sum up what you got from this meeting ?

Most IMP points?

◆ **Definition**

- **TEF** is a **congenital abnormal connection** between the **trachea (windpipe)** and **oesophagus (food pipe)**.
- It is often associated with **oesophageal atresia (OA)**, where the upper oesophagus ends in a blind pouch and doesn't connect to the stomach.

◆ **Antenatal Clues**

- **Polyhydramnios** (excess amniotic fluid) on scan.
- Small or absent stomach bubble (in oesophageal atresia).
- Diagnosis is **rarely confirmed antenatally**, but suspected based on findings.

◆ **Postnatal Presentation**

- Frothy secretions from the mouth and nose.
- Choking, coughing, cyanosis during feeding.
- Inability to pass a nasogastric tube into the stomach.
- Abdominal distension (air passing into stomach via fistula

◆ **Diagnosis**

- **Failure to pass NG tube** into the stomach (coiled in upper pouch, seen on X-ray).
- Chest X-ray to confirm tube position and detect air in stomach.
- May need further imaging (e.g. contrast studies, MRI) for detailed anatomy.

◆ **Initial Management**

- Keep baby **nil by mouth** (NPO).
- Position baby at **30–45° incline** to reduce reflux risk.
- **Continuous suctioning** of the upper pouch to prevent aspiration.
- IV fluids for hydration.
- Antibiotics if aspiration is suspected.
- Early referral to **neonatal surgical team**

◆ **Definitive Treatment**

- **Surgical repair**, usually within the first few days of life.
- Surgery involves:
    - Closing the fistula.
    - Reconnecting the two parts of the oesophagus (if possible).
- May be done in **one stage or multiple stages** depending on the gap between segments.

◆ Postoperative Care

- Managed in **Neonatal ICU (NICU)**.
- Ventilation support if needed.
- Gradual introduction of feeding via NG or gastrostomy tube.
- Monitoring for complications (anastomotic leak, stricture, gastro-oesophageal reflux).

◆ Long-Term Outlook

- Most babies do well after surgery.
- Long-term follow-up for:
    - Feeding and swallowing issues.
    - Reflux.
    - Growth and development.
    - Rarely, tracheomalacia or recurrent fistula.

◆ Associated Conditions

- TEF/OA may be part of **VACTERL association**:
    - **V**ertebral anomalies
    - **A**nal atresia
    - **C**ardiac defects
    - **T**racheo-**E**sophageal fistula
    - **R**enal anomalies
    - **L**imb abnormalities

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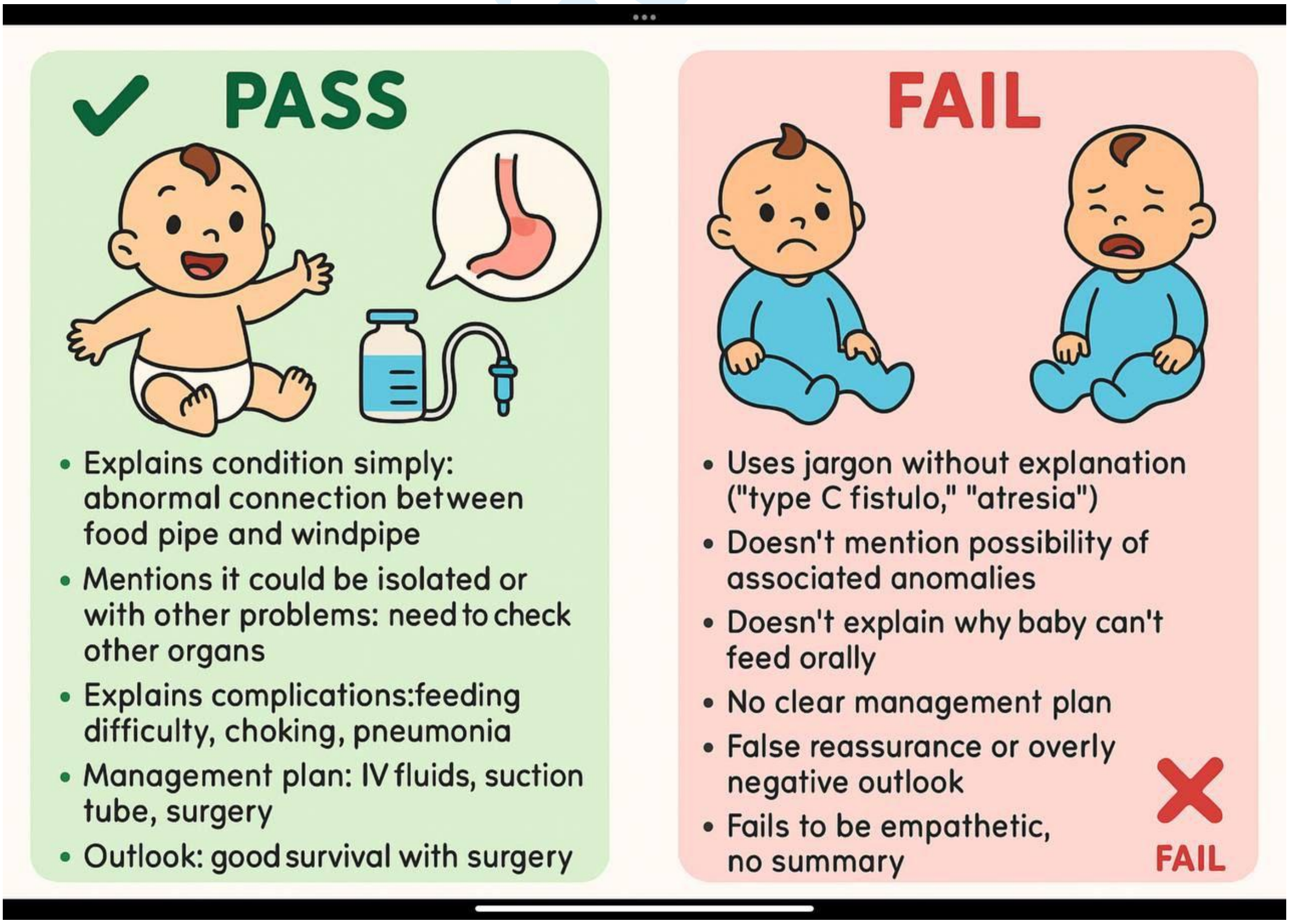


✓ PASS

- Explains condition simply: abnormal connection between food pipe and windpipe
- Mentions it could be isolated or with other problems: need to check other organs
- Explains complications:feeding difficulty, choking, pneumonia
- Management plan: IV fluids, suction tube, surgery
- Outlook: good survival with surgery

FAIL

- Uses jargon without explanation ("type C fistulo," "atresia")
- Doesn't mention possibility of associated anomalies
- Doesn't explain why baby can't feed orally
- No clear management plan
- False reassurance or overly negative outlook
- Fails to be empathetic, no summary

Bronchiolitis

Background information: A child was admitted due to gastroenteritis (GE). During the admission, the mother noticed that nurses weren't washing their hands between handling children, especially in a ward where some children had a cough. After discharge, the child developed a cough and tested positive for RSV (Respiratory Syncytial Virus). The mother was angry and blamed poor hygiene in the hospital. The child is stable but tachypneic and requires admission for feeding concerns—not oxygen.

Role: Dr Ramy paediatric registrar
Task: Explain to the mother Mrs Laila mother of Hana about the diagnosis of her girl with bronchiolitis and the plan of management and answer all her concerns.

Dr. Ramy:
good morning Mrs Laila, I'm here today to discuss with you about your Hana's condition, would you tell me first what do you know so far about her?

Mrs. Laila:
Doctor, I'm very upset and honestly heartbroken. My child was admitted for gastroenteritis, and during our stay, I noticed that the nurses weren't consistently washing their hands between handling different children. There were other kids in the ward who were coughing and visibly unwell.

After we were discharged, my child developed a cough, and when we returned to the emergency department, she tested positive for RSV.

I'm extremely concerned and angry. I feel like my child got infected while in the hospital, and I wasn't expecting this kind of hygiene lapse. She's a bit more stable now, but she's still struggling with feeding and rapid breathing. Why did this happen?

Dr. Ramy:
Mrs. Laila, I truly understand how distressing and frustrating this must be for you. As a parent, it's completely natural to feel angry and worried when your child becomes more unwell, especially after a hospital stay. I sincerely apologize for the experience you've had.

In our hospital, we have strict infection control measures in place, and we take hygiene and safety very seriously. However, I do acknowledge that sometimes, despite our best efforts, mistakes can happen. I deeply appreciate you bringing this to our attention, and I assure you that I will immediately inform our **infection control team** so they can investigate thoroughly. We're committed to learning from this and doing everything possible to prevent it from happening again.

Dr. Ramy (continues):
It’s also important to know that RSV is a very common virus that spreads easily, especially among infants and young children, particularly in the winter and autumn months. It can be **transmitted through the air or contact with contaminated surfaces**—even in environments with strong infection control. Unfortunately, no system can provide 100% protection, though we strive to get as close as possible.

Mrs. Laila:
I understand that, but still—it’s difficult to accept. I took all the precautions I could, and yet my child still got infected. What happens now? What treatment will she receive?

Dr. Ramy:
You're absolutely right to ask, and I’m here to guide you every step of the way. The good news is that your child is currently stable. However, because his breathing is faster than usual and she’s having difficulty feeding properly, we recommend admitting her for supportive care.

At home, it would be very hard to ensure she’s staying hydrated and nourished. In the hospital, we’ll support her feeding—either through a tube that goes from the nose to the stomach or by giving fluids through blood conduit, depending on her needs. We’ll also monitor her breathing closely and provide oxygen or other interventions if necessary.

Mrs. Laila:
But doctor, why haven’t you started **antibiotics** yet? Isn’t that part of the treatment?

Dr. Ramy:
That’s a very important question. Hana has bronchiolitis, which is inflammation in the small airways of the lungs. It’s most commonly caused by a virus—specifically, **Respiratory Syncytial Virus** (RSV).

Antibiotics are only effective against bacterial infections, not viruses. In fact, giving antibiotics when they’re not needed can sometimes do more harm than good. In cases like this, we focus on supportive care to help the body fight the virus on its own—just as we do for common colds.

Mrs. Laila:
So how exactly will you treat her without antibiotics?

Dr. Ramy:
We’ll support her recovery by ensuring she stays well-hydrated and nourished, monitoring her breathing, and giving oxygen if she needs it. Because her rapid breathing can interfere with feeding, we’ll use alternative feeding methods to reduce any risk of her condition worsening. Our goal is to help her recover safely and comfortably without needing invasive treatments.

Mrs. Laila:
But Dr I’m feeling terrible, my baby has bronchiolitis, and I can’t help. But I think it’s because the bad hygiene of the nurses. I should talk about this at that time.

Dr. Ramy:
I understand how angry you are about this and it’s totally your right. Don’t feel guilty about that. As I told you mistakes does happen, and we will try our best to prevent this from happening again. Also infection with this virus can occur by different ways other than the hygienic measures of the nurses.

Mrs. Laila:
So how my child got this infection?

Dr. Ramy:
RSV can spread if any child who has the condition started to cough or sneeze he spread the infection in air and the virus landed on the surfaces and can infect another person or it can spread from one child to other if he coughed or sneezed near him and the child breathed the virus.

Mrs. Laila:
But now I’m worried things may get worse if Hana stayed here more.

Dr. Ramy:
I understand your worries Mrs Laila but be sure we will take care regarding the infectious control as I told you we will admit her in separate ward and take care of every step in her management.

Mrs. Laila:
Dr what could be the complications of bronchiolitis?

Dr. Ramy:

Bronchiolitis is usually a **self-limiting viral illness**, but in some cases, it can lead to complications. Here are some of the main ones:

The child may experience stoppage of breathing, may turn blue.
Decrease his o2 in blood.
Some children may have chronic lung disease.
Super added infection may occur causing pneumonia.
some children could have dehydration due to feeding difficulty if not managed well

Mrs. Laila:
One more thing—my baby was born at 36 weeks and needed oxygen after birth. Why wasn’t she given palivizumab to protect against RSV?

Dr. Ramy:
That’s a thoughtful and valid concern**. Palivizumab** is a preventive treatment given to

certain high-risk babies, but there are strict criteria. It's typically offered to babies who are **extremely premature**, those with **specific heart or lung problems**, or infants who needed **prolonged oxygen support after birth**.

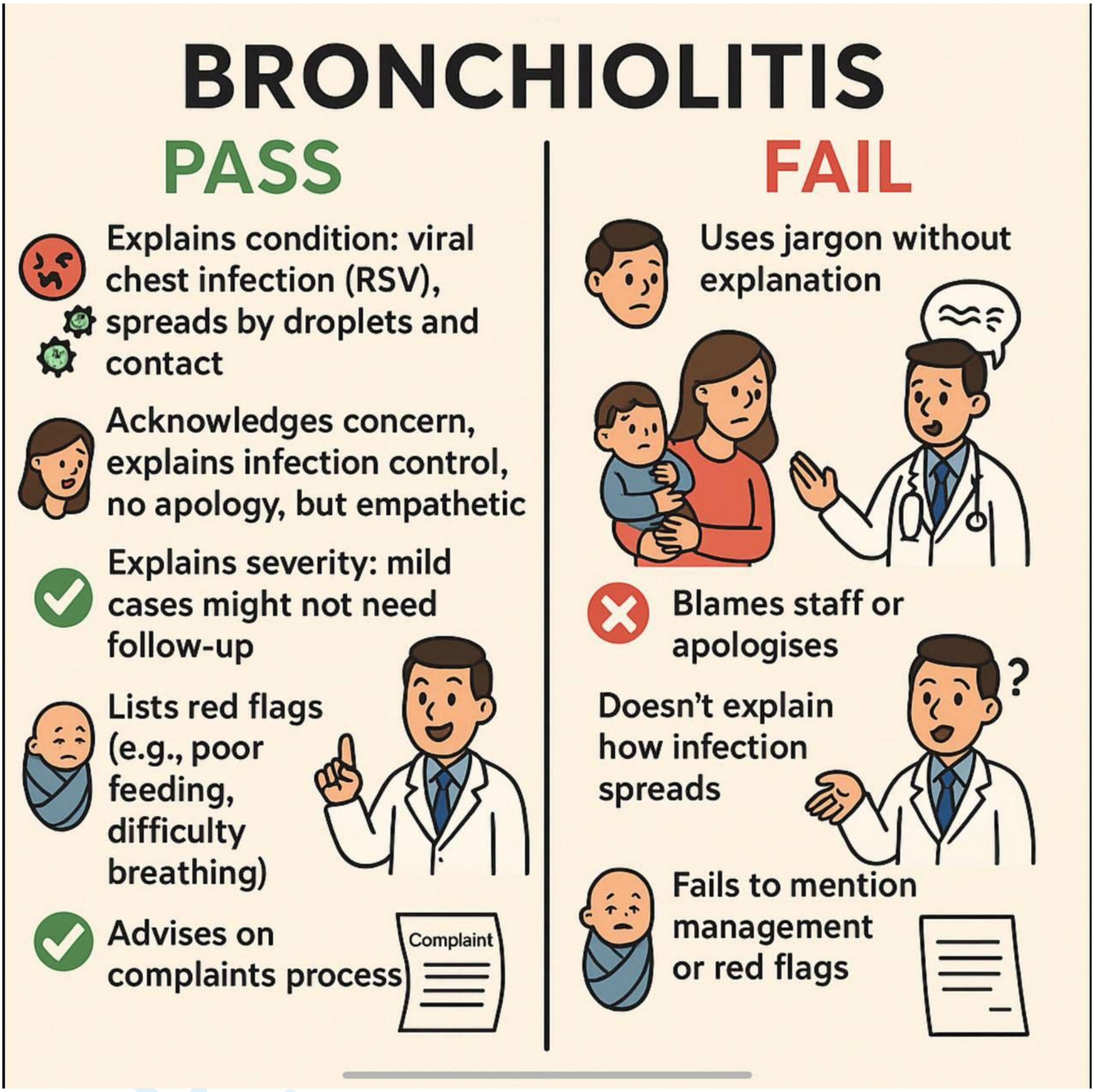
While your baby was born at 36 weeks and did need some oxygen, she may not have met the threshold for receiving palivizumab. However, we always reassess each case individually to make the best decisions based on the latest guidelines and your child's specific health condition.

Mrs. Laila:
Thank you for explaining, Doctor. I just want to make sure she's safe and getting the best care

Dr. Ramy:
Of course, Mrs. Laila. Your concern and advocacy for your child are admirable. We're here to support you and your baby with compassion and the highest standard of care. If you have any questions or worry at any time, please don't hesitate to ask. We're in this together.

Most imp points:

- RSV (Respiratory Syncytial Virus) is a **common, highly contagious virus**, especially in winter.
- **Bronchiolitis** is caused by RSV and affects the small airways in the lungs.
- **Antibiotics are not effective** for RSV, as it is a viral—not bacterial—illness.
- Treatment is **supportive only**: hydration, nutrition (via tube or IV), and oxygen if needed.
- **Hospital admission** is needed if the child has **rapid breathing** or **feeding difficulties**.
- **RSV can still spread** even with good infection control; 100% prevention is not possible.
- **Palivizumab**, a preventive injection, is only for **high-risk infants** (extreme prematurity, chronic lung/heart disease).
- Signs to seek urgent help: **difficulty breathing, blue lips, poor feeding, low urine output, drowsiness, or apnea**.



BRONCHIOLITIS

PASS

- Explains condition: viral chest infection (RSV), spreads by droplets and contact
- Acknowledges concern, explains infection control, no apology, but empathetic
- ✓ Explains severity: mild cases might not need follow-up
- Lists red flags (e.g., poor feeding, difficulty breathing)
- ✓ Advises on complaints process

FAIL

- Uses jargon without explanation
- ✗ Blames staff or apologises
- Doesn't explain how infection spreads
- Fails to mention management or red flags

DR.

Cystic Fibrosis

Background information: Hazem newborn FT baby delivered by normal delivery, during the newborn screening baby Hazem tested positive for cystic fibrosis (CF) through the immunoreactive trypsinogen (IRT) test.

The father Mr Ali who has other three children want to know the test results and what does it means.

Role: Dr Islam ST4 Registrar.
Task: Address the test results, explain what they mean, provide information about the condition, and answer all of Mr. Ali's concerns, including inheritance, the need for sibling screening, confirmatory testing, prognosis, and available treatment options.

Dr. Islam:
Good morning, Mr. Ali. Congratulations on the birth of your son, Hazem. How are you and your family doing?

Mr. Ali:
Thank you, Doctor. We're doing well, but I was told something showed up in Hazem's screening? I'm a bit worried.

Dr. Islam:
I understand, and I'm here to explain everything clearly. During the routine newborn screening—specifically a blood test called the **heel prick test**—we found that **Hazem has a positive result for cystic fibrosis (CF)** based on an elevated level of a substance called **immunoreactive trypsinogen (IRT)**. Have you heard about CF before?

Mr. Ali:
No Dr. Can you explain what is this?

Dr. Islam:
Certainly. CF is a **genetic condition** that affects the movement of salt and water in and out of cells. This leads to a **buildup of thick, sticky mucus**, especially in the lungs and gut.

Mr. Ali:
So does that mean he definitely has cystic fibrosis?

Dr. Islam:
Not necessarily. The IRT test is a **screening test**, not a diagnosis. A positive result means that **further testing is needed** to confirm whether Hazem truly has CF. We need to be sure.

Mr. Ali:
What’s the next step, then?

Dr. Islam:
The next step is a **sweat test**. This is the **standard confirmatory test**. It’s simple and non-invasive—we collect a small sample of sweat and measure the amount of **chloride** in it. A high chloride level suggests CF. We may also perform **genetic testing** to look for mutations in the CFTR gene.

Mr. Ali:
I have three other children. Should they be tested?

Dr. Islam:
That’s a very important question. Because **CF is inherited in certain way called an autosomal recessive manner**, which means both parents must be carriers of the faulty gene. If you and your wife are both carriers, each child has possibility:

- **1 in 4** chances of having CF,
- **1in 2** will be a carrier (without symptoms),
- **1in 4** chance of being unaffected.

that’s why we recommend **genetic testing by taking swab from their mouth** for your other children to determine their status. It also helps with **future family planning**.

Mr. Ali:
Is it a serious condition? Can he live a normal life?

Dr. Islam:
I'm sorry to tell you that cystic fibrosis is indeed a serious condition.
However, the good news is that with **advances in medical care** and adherence to the right treatment plan, **many children with CF can live normal lives**. With **regular check-ups** at a cystic fibrosis clinic, treatment focuses on:

- Keeping the lungs clear,
- Preventing infections, and
- Ensuring proper nutrition.

Mr. Ali:
What Is the Outlook for Someone with CF?

Dr. Islam:
With **proper management and care**, many children with CF can live a **normal life into adulthood**.
It’s essential to:

- Follow the recommended treatments,
- Keep up with regular clinic appointments, and

- Minimize complications through early intervention.

There’s ongoing **promising research**—including in **gene therapy**—which brings hope for even better outcomes in the future."

Mr. Ali:
What kind of treatment will he need?

Dr. Islam:
If the diagnosis is confirmed, Hazem will be referred to a **cystic fibrosis team**. This includes:

- Breathing dr who is called **respiratory specialist**,
- A **diet dr.**
- A **physiotherapist**, and
- A **specialist nurse**.

Treatment may involve:

- **Chest physiotherapy** to clear mucus,
- **Enzyme supplements** to aid digestion,
- **High-calorie nutrition**,

Regular antibiotics to prevent infections.
The team will support your family throughout and tailor the treatment to Hazem’s need

Mr. Ali:
Is It Lethal?

Dr. Islam:
Cystic fibrosis can **impact both life expectancy and quality of life**, but:

- **Treatment advances** have dramatically improved survival rates.
- It’s still considered a **life-limiting condition**, meaning people with CF require lifelong care and monitoring.

However, **early diagnosis** and **comprehensive management** can significantly improve long-term outcomes."

Dr. Islam:
Mr. Ali, I know this is a lot to take in. Please remember: this is a **screening result, not a diagnosis**. The next step is to confirm the result, and if needed, we will start early, comprehensive care. We’re here to support you every step of the way. I’ll give you trusted websites to read more about CF.

Mr. Ali:
Thank you, Doctor. I appreciate you taking the time to explain all of this.

Dr. Islam:
Of course. If you have any more questions, feel free to reach out at any time.

Most imp points:

- A newborn screened **positive for cystic fibrosis (CF)** via the **immunoreactive trypsinogen (IRT)** test.
- This is a **screening result**, not a diagnosis — further testing is needed.
- The **confirmatory test** is a **sweat chloride test**, sometimes followed by **genetic testing**.
- **Cystic fibrosis** is a **genetic condition** that causes thick mucus buildup, affecting the lungs and digestive system.
- It is inherited in an **autosomal recessive** pattern; both parents must be carriers.
- There is a **25% chance** of having CF for each child if both parents are carriers.
- **Sibling screening** is recommended to determine carrier or affected status.
- **Prognosis** has improved significantly due to early detection and advanced treatments.
- Management involves a **multidisciplinary team** (respiratory care, dietitian, physiotherapy).
- Trusted resources include the **NHS**, **Cystic Fibrosis Trust**, and **CF Kids**.
- Early diagnosis and **lifelong care** are essential for better outcomes and quality of life.

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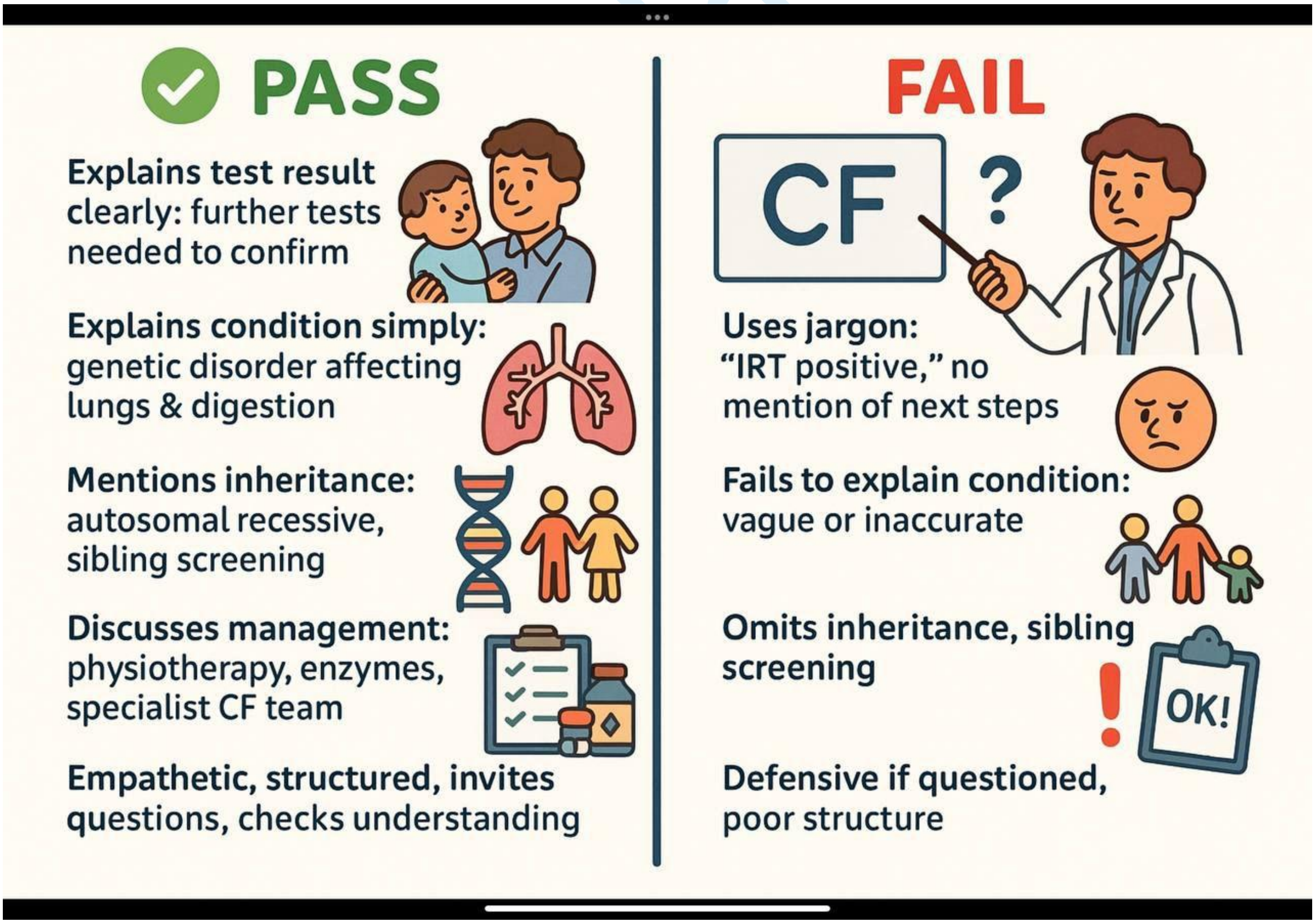


PASS

Explains test result clearly: further tests needed to confirm

Explains condition simply: genetic disorder affecting lungs & digestion

Mentions inheritance: autosomal recessive, sibling screening

Discusses management: physiotherapy, enzymes, specialist CF team

Empathetic, structured, invites questions, checks understanding

FAIL

Uses jargon: "IRT positive," no mention of next steps

Fails to explain condition: vague or inaccurate

Omits inheritance, sibling screening

Defensive if questioned, poor structure

Congenital pneumonia

- **Background information:** Zain newborn full-term (FT) baby, for healthy mother with good antenatal care. During a check in the postnatal ward, the baby's temperature was 35.5. they did Sepsis workup and chest X-ray confirmed that Zain has congenital pneumonia. Blood tests (CBC) showed mildly active sepsis.

  Role: Dr Mohamed ST4 Registrar.
  Task: Explain to Mr Hassan father of Zain the diagnosis and need for admission and start of antibiotics.

Dr Mohamed:
Hello Mr Hassan, congratulations for your baby, hope a rapid recovery for your wife.

Mr Hassan:
Thank you, Dr.,

Dr Mohamed:
Mr Hassan I'm here now to discuss with you some updates about Zain, when we examined Zain we found that he has a condition called congenital pneumonia, have you heard about it before?

Mr Hassan:
No Dr what is this?

Dr Mohamed:

- Pneumonia**:** Infection in the lung causing inflammation, making breathing difficult.

- Congenital**:** Means the infection occurred while the baby was still in the mother's womb or during the journey to get out (birth canal).

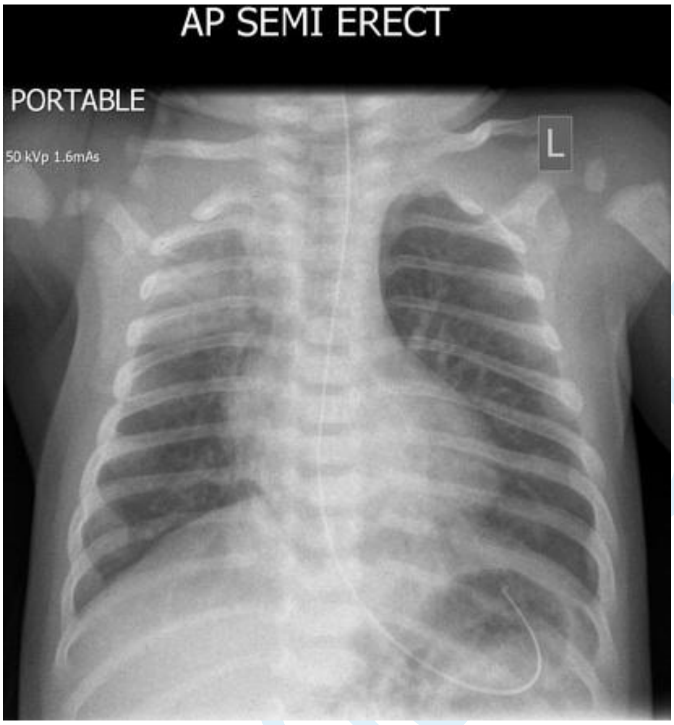
Mr Hassan:
What is the reason for this infection? he is just born how he caught it?

Dr Mohamed:
In many cases, it can be caused by an infection the mother might have had in her birth canal, or an infection she caught very late in her pregnancy. Sometimes, honestly, we can't pinpoint an exact reason, but it's important to know it's not your fault or something that could have been easily prevented.

Mr Hassan:
How did you know he has this infection? He doesn't have fever?

Dr Mohamed:
Newborns are very delicate, and their immune systems are still developing. That's why they

don't always show the typical signs we expect, like coughing. For Zain, his slightly low temperature of 35.5 was actually an early warning sign for us. We did several tests. His blood tests showed some signs of infection, and the chest X-ray clearly indicated inflammation and what we call 'opacities' in his lung. This means there's an infection there, confirming the pneumonia. Because normally the lung appears black in the X ray with no opacities. **DRAW**



Mr Hassan:
But Dr. is it contagious condition?

Dr Mohamed:
While some infections can be contagious, in most cases, congenital pneumonia isn't highly contagious for other newborns. However, as a precaution, we always practice strict infection control, like hand washing, to ensure everyone's safety.

Mr Hassan:
What will you do now to save my baby?

Dr Mohamed:
I know how it’s difficult to you Mr Hassan but I want you to know that we are taking immediate action. We will admit Zain to our neonatal care unit. He will be carefully monitored around the clock. We will ensure he gets adequate nutrition, either through feeding or a blood conduit if needed. Most importantly, we will start him on antibiotics as early as possible. We will also closely monitor his breathing and provide any support he needs.

Mr Hassan:

What?! Antibiotics! he is so tiny for that, many people got lung infection and resolve without antibiotics.

Dr Mohamed:

That's a very fair question. While we want him to be strong, his tiny body and immature defense system simply cannot fight this infection alone. Without antibiotics, the infection can unfortunately spread very quickly from his lungs to other vital parts of his body, like his brain or his heart, potentially leading to very serious, life-threatening complications. Starting the antibiotics early is our best chance to prevent these complications and significantly decrease the severity of the illness.

Mr Hassan:

Will these antibiotics have side effects? How he will take it?

Dr Mohamed:

All medications can have side effects, and antibiotics are no exception. They can sometimes affect the liver and kidneys. However, we will be monitoring Zain very closely for any signs of this. Can cause some troubles with digestion but improve shortly after stopping the drug. His well-being is our top priority. We'll also be giving the antibiotics through a blood conduit, rather than by mouth. This is because we can't predict how well his tiny body would absorb it orally, and we need to ensure he gets the full, effective dose directly into his system.

Mr Hassan:

Ok dr I got your idea but I want to wait for my spouse to wake up, I really can't make big decisions without her. She's his mother, she needs to be here.

Dr Mohamed:

Mr. Hassan, I completely understand that this is a huge decision, and your wife's input is incredibly important. And I truly appreciate you wanting to make this decision together. However, with Zain, time is absolutely critical right now. We need to start antibiotics as soon as possible. Every hour of delay can unfortunately lead to a deterioration in his condition. We need to act quickly to give him the best chance at a swift recovery.

Mr. Hassan:

So, what do we do now, Doctor? Is this dangerous?

Dr. Mohamed:

Mr. Hassan, I'm sorry to tell you this condition can be serious, particularly for newborn babies like Zain. Their lungs and their entire defense system are still so undeveloped. It can lead to breathing difficulties and low oxygen levels. In severe cases, it can unfortunately cause complications like respiratory failure or even a widespread infection in the body, which we call sepsis.

Mr Hassan:
So, when will he be discharged? How long will all this take?

Dr. Mohamed:
We will continue the antibiotics and follow him very closely until his condition improves, and his lungs are clear of inflammation. There isn't an exact timeline I can give you right now, as it truly varies from child to child and depends on how well Zain responds to the treatment. Some babies recover within a week or two, while others might need a bit longer, especially if the infection was more severe. We will update you with every single step of his progress, every day, so you'll always be informed.

Mr. Hassan, I know this is a lot to take in, and it's incredibly worrying. But I want to assure you that Zain is in the best hands. Our team is dedicated to giving him the very best care. We are running out of time, and every moment counts because his immune system is so delicate, and the infection can spread rapidly. Starting treatment now is crucial. We'll get through this together.

Most imp points:

- **Pneumonia:** An infection in the lung causing inflammation and breathing difficulties.
- **Congenital:** The infection was acquired either in the womb or during birth.

- **Possible Causes:** Often due to maternal infection in the birth canal or a late-pregnancy infection. Sometimes the cause is unknown.

- **Newborn Specifics:** Newborns have underdeveloped defense systems and may not show typical symptoms like coughing; low temperature can be an early sign.

- **Diagnostic Tests:** Diagnosis was confirmed through blood tests (showing mild active sepsis) and a chest X-ray (showing lung infection/opacities).

- **Contagion:** Generally not highly contagious for other newborns, but infection control measures (e.g., hand washing) are recommended.

- **Treatment Plan:** Admission to neonatal care, careful monitoring, adequate nutrition (feeding or IV), and prompt initiation of antibiotics. Breathing support provided if needed.

- **Urgency of Treatment:** Antibiotics are crucial because newborns' immune systems are weak and cannot fight the infection alone. Delay can lead to rapid spread of infection to other organs (brain, heart) and life-threatening complications (e.g., respiratory failure, sepsis).

- **Antibiotic Administration & Side Effects:** Administered via IV for better efficacy due to unpredictable oral absorption in newborns. Potential side effects on liver and kidneys necessitate continuous monitoring.
- **Prognosis/Recovery Time:** Recovery time varies; some babies improve within 1-2 weeks, while others with more severe infections may require longer treatment.

Congenital pneumonia

- ✓ Explains diagnosis clearly: lung infection present soon after birth
- ✓ Explains consequence: infection can spread, become life-threatening
- ✓ Asks why father may refuse, addresses worries respectfully
- ✓ Empathetic, reassures treatment is safe and effective
- ✓ Checks ? understanding, encourages questions

- Doesn't explain consequences of refusal
- ● No clear management plan
- ✗ Ignores father's concerns
- ✗ Unempathetic, dismissive tone
- ✗ Provides no opportunity to discuss

Teenager with Asthma

Background information: Ali, a 14-year-old boy, Has had asthma since the age of 7. He was admitted yesterday due to a flare-up and was treated with nebulised bronchodilators and oral steroids. He responded well to treatment and is now considered fit for discharge. The consultant has recommended starting him on inhaled corticosteroids (ICS) as a long-term preventative treatment. However, This is the third time to have this attack. Ali is hesitant about using the medication.

Role: Dr Sherif ST4 Registrar.
Task: Review and discuss with Ali his asthma management plan, Explain the importance of controller medications like ICS and address any concerns or worries he may have.

Dr Sherif:
Hi Ali, how are you feeling now?

Ali:
A lot better, thanks. I can finally breathe properly again.

Dr. Sherif:
That's great to hear. You've done really well. I wanted to have a quick chat with you before we send you home—just to talk about how we can keep you feeling this good.

Ali:
Okay.

Dr. Sherif:
So Ali you know that you have been diagnosed with asthma since a while can you tell me what do you know so far about asthma?

Ali:
I know that it's a problem in my lung causing difficulty of breathing.

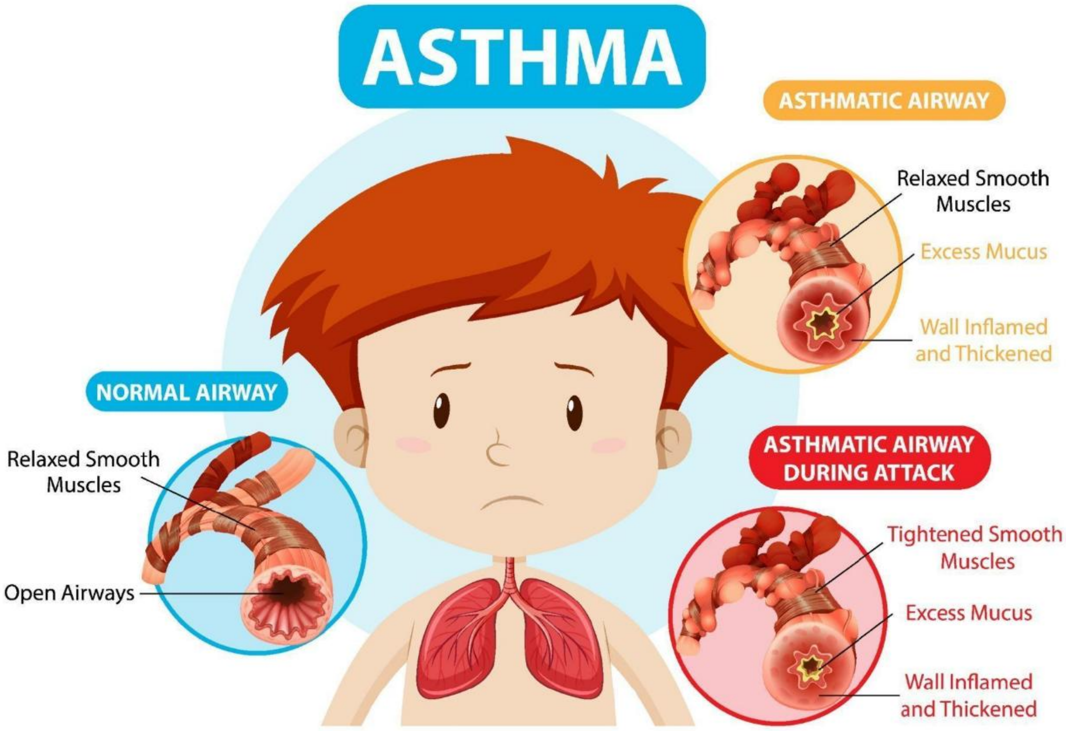
Dr. Sherif:
yeah Ali you are right, but let me explain more details about it. Can you follow my drawings
DRAW
Asthma is a **long-term condition** that affects your lungs and breathing.
If you have asthma:

- The **airways** (tubes that carry air in and out of your lungs) become **sensitive**.
- When something triggers your asthma (like cold air, exercise, or dust), your airways:
    - Get **narrow** (tighten up) and the lining of the airways can become **swollen**

This makes it **harder to breathe**, and can cause:

- **Coughing**
- **Wheezing** (a whistling sound when you breathe)
- **Tight chest**
- Feeling **short of breath**

The problem is with continuous inflammation of that air ways it becomes more and more narrow this makes the attacks to be more sever with time. I think this is the third time you've had a bad asthma attack, right?


ASTHMA
ASTHMATIC AIRWAY
Relaxed Smooth Muscles
Excess Mucus
Wall Inflamed and Thickened
NORMAL AIRWAY
Relaxed Smooth Muscles
Open Airways
ASTHMATIC AIRWAY DURING ATTACK
Tightened Smooth Muscles
Excess Mucus
Wall Inflamed and Thickened

Ali:
Yeah... it keeps happening. I hate it.

Dr. Sherif:
I completely understand. It must be frustrating and even scary at times. That's why we want to make sure you're not just treating the attacks when they happen but actually preventing them from happening in the first place.

Ali:
You mean the brown inhaler?

Dr. Sherif:
Yes, exactly—that's the inhaled corticosteroid, or ICS. It's a controller medicine that you take every day, even when you're feeling fine. It helps reduce inflammation in your lungs and lowers the chances of future attacks. It's the corner stone in managing asthma.

Ali:
But I don’t really like taking it. I feel okay most days. Do I really have to?

Dr. Sherif:
That’s a fair question. I know it might seem unnecessary when you're feeling well. But what we’ve seen is that without daily preventer medication, asthma can suddenly get worse—like what happened yesterday. Taking ICS every day strengthens your lungs and makes them less sensitive to triggers, decrease this inflammation and preventing progressive narrowing of your airways.

Ali:
But I feel better when I take the blue inhaler, I think its enough isn’t it?

Dr. Sherif:
That’s very good observation from you Ali, the blue inhaler makes you feel better rapidly because it acts directly to relieve the airway narrowing, but the problem is that it has transient effect and it doesn’t affect the inflammation that cause this narrowing, that’s why it’s very helpful to manage the acute symptoms but it will not improve the whole condition unlike ICS. Did you get my point?

Ali:
Yeah, got it, but I don’t want to be on inhalers forever...

Dr. Sherif:
I get that. The goal isn't to have you on them forever if you don’t need them. But for now, using the preventer regularly could help reduce the need for emergency visits and stop these scary episodes. We’ll keep checking on you, and if your asthma improves over time, we might be able to reduce or even stop it later.

Ali:
Hmm... I guess I don’t want to end up back in hospital again. but I’m sorry I’m not keen to take it.

Dr. Sherif:
Could you tell me why?

Ali:
Hmm I’m scared it might have side effects. I know corticosteroids can make me chuppy.

Dr. Sherif:
That’s a good thing to ask about. Most people don’t have problems with inhaled steroids, but sometimes like any medication it could have little SE, it can cause a sore throat or hoarse voice. But if you rinse your mouth after using it, that usually prevents it. And we’ll keep checking in with you to make sure you’re doing well.

But regarding making you chuppy its very rare to happen with inhaled steroids as its given locally to your airways with very small dose, so it has minimal or even no effect on your weight.

However every time you got attack of asthma you need corticosteroid to be taken systemically with higher doses, that what could cause side effects if taken repeatedly due to frequent attacks.

So what do you think now to take minimal dose by inhalation or to have frequent exacerbation attacks with repeated hospital admission and high doses of CST.

Ali:
Okay... I'll try it.

Dr. Sherif:
Exactly. Think of it like brushing your teeth—you don't wait until you have a cavity to start brushing. It's about prevention. We'll show you exactly how to use the inhaler properly, and I'll also make sure you and your parents get a clear asthma action plan to follow at home.

Ali:
Thanks, Dr. Sherif.

Dr. Sherif:
You're welcome, Ali. You've been really brave. I'll give you very good leaflets to read more about asthma and get more information about the inhalers use and its importance, now I just want to know what have you got from this meeting?

Most imp points:

Asthma – Key Points Summary

- **Asthma is a long-term lung condition** that makes breathing difficult.
- It happens when the **airways become sensitive, swollen, and narrow**, especially when triggered.
- **Common symptoms:**
    - Coughing
    - Wheezing (whistling sound)
    - Chest tightness
    - Shortness of breath
- **Triggers** can include:
    - Cold air, dust, pollen, exercise, smoke, or infections

💊 Two main types of inhalers:

1. **Reliever inhaler** (blue):
    - Used when symptoms happen
    - Works quickly to open airways
2. **Preventer inhaler** (brown):
    - Used every day
    - Helps stop symptoms and prevent attacks

    - Reduces inflammation in the lungs

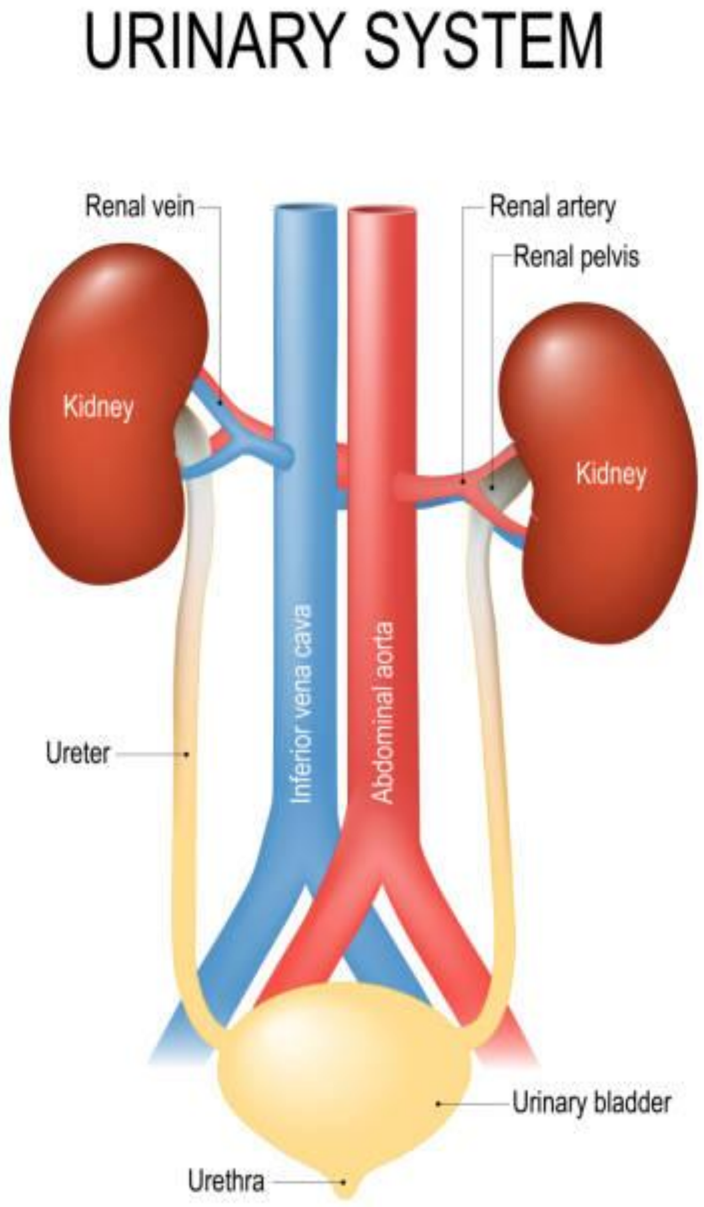
⚠️ Asthma attacks:

- Happen when airways become severely tight and swollen
- Can be dangerous and need urgent treatment

✅ Good asthma control means:

- Few or no symptoms
- Sleeping through the night without coughing
- Being able to play and exercise normally
- Not needing the blue inhaler too often

Communication


URINARY SYSTEM
Renal vein
Renal artery
Renal pelvis
Kidney
Kidney
Inferior vena cava
Abdominal aorta
Ureter
Urinary bladder
Urethra

Nephrotic relapse

Background information:

Ali is 3-year-old. Ali has been diagnosed with nephrotic syndrome before and received course of steroid till his condition improved during this time Ali's behaviour was very difficult. Now for 3 days he is having 3+ protein in urine, his renal function within normal, its recommended to start on steroids again. Mrs Donia mother of Ali refused to start steroids again as she suffered from the behavioural changes in the first course.

Task:

Discuss with Mrs Donia the importance of restarting steroids and answer all her concerns.

Role:

Dr. Amir ST4 pediatric registrar.

Dr. Amir:
Hi Mrs Donia, it's good to see you again. I wanted to sit down and talk through everything regarding Ali's condition with you. But would you first tell me what's your last updates about him?

Mrs Donia:
yeah dr, Ali was previously diagnosed with nephrotic syndrome and received steroids till he improved, and they stopped it. Now his urine dip started to show protein again and they talked to me about starting steroids again for him, but I refused**.**

Dr. Amir:
thanks for sharing that information with me, so 1st do you know what is the role of CST in nephrotic syndrome or you want me to go through?

Mrs Donia:
No I don't.

Dr. Amir:
Nephrotic syndrome is a condition that occur due to overshooting of the defence system and instead of attaching infection it attacks the kidney meshwork making it leaks proteins in urine. But CST stop this overshooting of the defence system. And now because your child has symptoms and positive protein in urine. We need to start him on steroid now.

Mrs Donia:
No, doctor. Last time was really hard. The steroids changed him completely — he was aggressive, didn't sleep, and I felt like no one helped us through it. I can't go through that again.

Dr. Amir:
I hear you, and I'm really sorry you felt unsupported. That must have been exhausting. This is one of the drawbacks of the steroids, like any drug we weigh benefits against risks and here the benefits here is more. **These behavioural changes occur because**:

- CST has direct effect on brain structures and functions specially the behavioural regulations and mood changes.
- It causes disturbance in chemicals called hormones affecting mood.
- Also, disturbance in some chemicals in the body like glucose.
- Interfere with normal sleep pattern.
- Also cause psychological stress in addition to the stress caused by the disease itself.

Mrs Donia:
He was a different child. It affected the whole household.

Dr. Amir:
It's important that we don't ignore your experience. I'd like to talk with you a bit about where Ali is now, why we're recommending steroids again, and how we can do things differently this time.

Mrs Donia:
Okay.

Dr. Amir:
So, at the moment, Ali's urine is showing 3+ protein for the last three days. That strongly suggests he's having a relapse of his nephrotic syndrome. The good news is that his kidney function is still normal— but relapses need to be treated to prevent complications like swelling or infections.

Mrs Donia:
Is there no other option besides steroids?

Dr. Amir:
That's a very fair question. For relapses like this, **steroids are still the first-line** and **most effective** treatment. They help reduce the protein leak quickly and bring the condition back under control. Without them, Ali could become unwell quite fast — fluid could build up in his body, or he might become prone to other problems.

Mrs Donia:
But I just can't go through what we went through last time.

Dr. Amir:
You shouldn't have to go through it alone again. What we can do this time is make a proper support plan from the beginning. We'll involve a named nurse who can check in with you regularly, and I'll make sure you have direct contact with our team if things get difficult. And the good news that this time he will not receive the high dose of steroid for long time like the first time but he will take this daily high dose till his urine become protein free for 3

days. Then we will shift to alternate day use, so I think this will not give these behavioural changes.

Mrs Donia:
Can anything be done for that?

Dr. Amir:
Yes — now that we know how Ali responded before, we can be much more prepared. For example, we can link you with our behavioural therapy team (CBT), community paediatric team to help monitor any behavioural changes, and we can give you clear advice about routines, sleep, and how to handle difficult episodes.

(if still refusing we can arrange meeting with the kidney dr who can prescribe other medication that can manage Ali's condition but be sure that any medication has its draw backs)

Mrs Donia:
I just want what's best for him, but I'm scared.

Dr. Amir:
And that's completely understandable — you're doing exactly what a good mum does, asking questions and protecting her child. I believe starting steroids is the safest and best option for Ali's health right now, and I promise we'll walk with you every step this time.

Mrs Donia:
ok, fine. But does this mean his kidney failed and he will need dialysis later?

Dr. Amir:
I know how its difficult to you to think like that but let me reassure you that relapse doesn't mean he needs dialysis it is just recurrence of the nephrotic syndrome and with proper management every thing will go back to normal, let's hope the best for him.

Mrs Donia:
Will you do renal biopsy?

Dr. Amir:
Actually Mrs Donia at the moment **no need to do renal biopsy** as its expected in the normal course of nephrotic syndrome to have this relapse but in **certain situations** when this relapse become more frequent or at any point if became unresponsive to steroid therapy or if his renal functions started to be affected or if he got high blood pressure or blood in urine and so on, at this time we will think about different form of nephrotic syndrome not the classic form and we will go through renal biopsy. But until now everything is going with the classic form of nephrotic syndrome and most of the children grow out of which normally.

Mrs Donia:
But Dr will he take the same crushed tablets? Because it tastes very bad and he some times refuse to take it?

Dr. Amir:
yeah, it’s the same tablets but you can mix it with some juice to change its taste or to give him some thing he likes after it to change the taste like fruits or nuts. How do you find it now?

Mrs Donia:
that’s really good thank you dr for your explanation I’ll start the steroid I hope things go better this time.

Dr. Amir:
Thank you Mrs Donia that’s a wise decision. I’ll provide you with some trusted websites if you like to read more about nephrotic syndrome and how to deal with the behavioural changes of steroids. Now, I’ll summarise to you what we discussed today. And if you think of anything else later — even small worries — please just let us know.

Most Imp points:

- **Nephrotic syndrome**: A kidney disorder causing the body to leak large amounts of protein into the urine (proteinuria), typically due to damage in the glomerular filtration barrier.
- **Classic signs**:
    - Heavy proteinuria
    - Hypoalbuminemia
    - Edema (swelling)
    - Hyperlipidemia (often seen on blood tests)
- **Most common type in children**: *Minimal Change Disease (MCD)* – usually steroid-sensitive.

🔄 Relapse

- **Definition of Relapse (NICE)**: Urinary protein 3+ or more on dipstick for three consecutive days after a period of remission.
- **Triggers**: Often associated with infections, particularly viral illnesses.
- **Clinical importance**: Relapses must be treated to prevent complications like:
    - Severe edema
    - Infections (e.g. peritonitis)
    - Thromboembolism
    - Hypovolemia

💊 Steroid Management (Corticosteroids – CST)

First-line treatment:

- **Prednisolone** is the drug of choice.
- **Initial high-dose daily regimen** during the first presentation or relapse.

- When urine is **protein-free for 3 consecutive days**, switch to **alternate-day prednisolone**.
- Then **taper and stop** as per guideline or response.

Dosing Summary

- **Initial**: 60 mg/m^2/day (max 60 mg) for 4–6 weeks.
- Then: 40 mg/m^2 on alternate days for another 4–6 weeks.

Important considerations:

- **Do not stop steroids abruptly**.
- Monitor for side effects and ensure follow-up

⚠️ Steroid Side Effects (Common in Children)

- Behavioural: mood swings, irritability, aggression
- Sleep disturbances
- Increased appetite and weight gain
- Hypertension
- Hyperglycemia
- Growth suppression (long-term)
- Cosmetic concerns (e.g., cushingoid appearance)

✅ Support & Monitoring

- Provide **education to caregivers** about the condition and expected course.
- Use **urine dipstick monitoring at home** to detect relapse early.
- Offer **named nurse/contact point** for ongoing support.
- Consider behavioural health referral if side effects become significant.
- Encourage adherence strategies (e.g., masking taste of medication).

🧪 When to Consider Further Investigation

- Indications for **renal biopsy**:
  - Frequent relapses or steroid dependence
  - Steroid resistance (no remission after 4 weeks of full-dose steroids)
  - Abnormal renal function
  - Gross hematuria
  - Hypertension

Circumcision

Background information:

Mrs. Nagla, the mother of Omar, a 1-month-old boy, is seeking information about circumcision. Her husband has read that it may help reduce the risk of infections and certain types of cancer. She is wondering about its importance and would like to learn more before making a decision. As no one in her family did it before.

Task:

Discuss with Mrs Nagla about circumcision and answer all her concerns.

Role:

Dr. Yassin ST4 pediatric registrar.

Dr. Yassin:

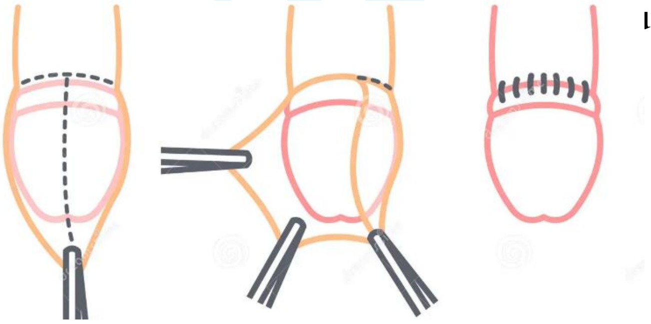
Good morning, Mrs Nagla nice to meet you.

Mrs Nagla:

Good morning dr, so Dr I want to ask you about circumcision my child is 1 month old and my husband has read about it and wants to do it to my child and I don't have any idea about as no one in my family did it before so can you help me know whether its good operation to do to my baby or not?

Dr. Yassin:

yeah of course Mrs mcision, please follow my drawings **DRAW**



This is the phallus and there is skin here covering the head called foreskin, in circumcision we cut the foreskin covering the head of phallus by surgical procedure.

As any medical procedure there is some pros and cons, regarding the pros:

- It decreases the risk of infection in pee system **however** the risk is low in this age.
- It decreases the risk of sexual transmitted diseases **however** any male not taking precautions for STDs whether circumcised or not is susceptible for infection.
- It decreases the risk of phallus cancer **however** its rare.
- It makes cleaning of phallus easier which decrease the risk of skin infections in this area.

DR. ada Refaat

Mrs Nagla:

And what is the cons Dr?

Dr. Yassin:

The cons is:

- It can cause some pain, **but** it could be managed.
- It can cause bleeding **but** its controllable.
- It can cause infection, **but** we follow strict cleaning precautions.
- Some patients may not be satisfied by the results of the procedure cosmetically because of removal of less or excess skin than required.

Mrs Nagla:

What could prevent me from doing it?

Dr. Yassin:

That's a good question Mrs Nagla, the only thing if there structural abnormalities in the phallus.

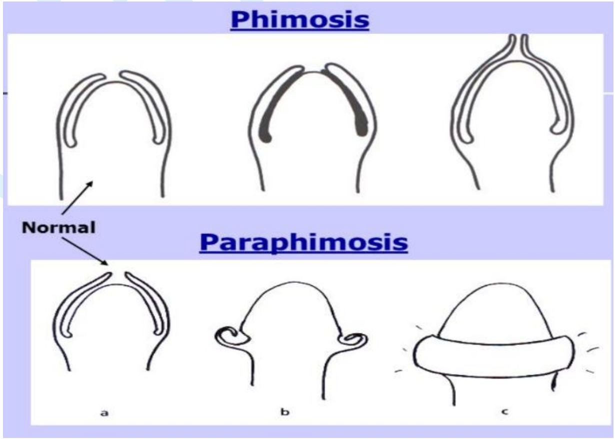
Mrs Nagla:

But dr what's your advice is it better to do it or not?

Dr. Yassin:

I appreciate how caring you are about your baby but it's a personal decision after weighing the benefits and the risks you can decide according to your believes and your opinion.
But sometimes in certain indications we advise to do circumcision like:

- Phimosis: the skin around can't be retracted over the head.
- Paraphimosis: when retracting foreskin can't be returned to cover the phallus again.
- Recurrent balanitis: infection or inflammation in the glans it self.



Mrs Nagla:

Aha I got it, but how it's done?

Dr. Yassin:

It's a minor procedure done by expert surgeon, sometimes after cutting the foreskin they put sutures to decrease the bleeding and sometimes they don't. Then they wrap this area with non-tight wrapping which is usually removed at 24 hrs, and it will be easily cleaned with tap water only.

Mrs Nagla:
Now my baby has some redness around his phallus, does it mean he needs this operation?

Dr. Yassin:
It may be irritation from diaper causing this rash, maybe you need to change the diaper more frequently and use zinc cream.
and at any time if you found this increasing just come for medical advise.

Mrs Nagla:
If I decided to do it is it covered by the NHS?

Dr. Yassin:
I'm sorry to tell you Mrs Nagla if there is no clear indication like we mentioned before it won't be covered by the NHS.

Mrs Nagla:
So Dr do you recommend doing this operation for my baby? Because my husband is American and he had it when he was young and he wants to do it to my baby?

Dr. Yassin:
Beyond the medical indication, I can't recommend or not, you can decide according to your believes and your culture and religion but from the medical point of view there is no indication.

Mrs Nagla:
Thank you Dr that was very informative.

Dr. Yassin:
Thank you Mrs Nagla if you don't mind, I'll summarise to you what we've discussed today and I'll give you trusted website and leaflets with all that details.

Most IMP points:

Circumcision:

- **Medical indications**:
  - **Phimosis**
  - **Paraphimosis**
  - **Balanitis xerotica obliterans** (BXO)
- **Non-medical reasons**:
  - Cultural, religious, or personal preference
- **Contraindications:**
  - **Hypospadias or Epispadias**
  - **Chordee (penile curvature)**

  - **Ambiguous Genitalia or Disorders of Sex Development (DSD)**
  - **Bleeding Disorders (e.g., Haemophilia)**
  - **Congenital Penile Abnormalities**
    E.g., buried penis, micropenis — these may need urological assessment before any procedure.
- **Risks**:
  - Pain
  - Bleeding
  - Infection
  - Rare complications involving penile injury or poor cosmetic outcome

Related Conditions:

Phimosis:

- Inability to retract the foreskin over the glans penis.
- **Physiological phimosis** is normal in infants and young boys, often resolving by age 3–5.
- **Pathological phimosis** can cause pain, urinary issues, or recurrent infections. Treatment may include steroid creams or circumcision.

Paraphimosis:

- Occurs when a retracted foreskin becomes stuck behind the glans and cannot return to its normal position.
- Can cause swelling, pain, and impaired blood flow.
- Considered a **urological emergency** and may require urgent intervention.

Balanitis:

- Inflammation of the glans penis, often due to infection, poor hygiene, or irritation.
- Symptoms: redness, swelling, pain, discharge, or itching.
- More common in uncircumcised males due to accumulation of smegma (a combination of skin oils and cells).
- **Recurrent balanitis** may be an indication for circumcision if not responsive to conservative treatment (e.g., hygiene, topical antibiotics or antifungals).

Vulvovaginitis

Background information: Farida 5 years old girl who plays swimming regularly, she had repeated attacks of vulvovaginitis. she went to the GP who prescribed daktarin gel for her. But the mother is so concerned

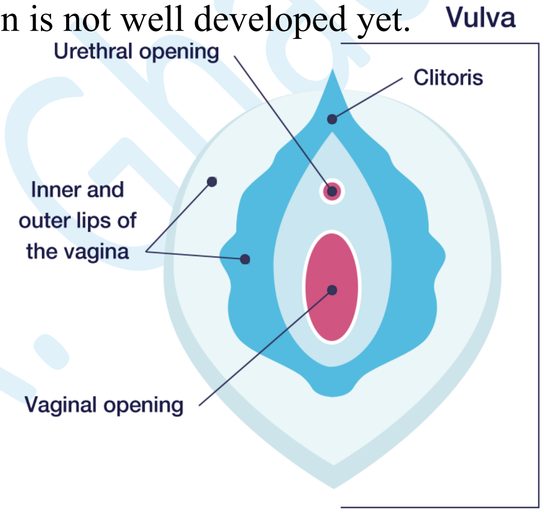
Role: Dr Ali ST4 Registrar.
Task: Explain to Mrs Sara the condition of Farida and answer all his concerns.

Dr. Ali:
good morning, Mrs Sara. Would you tell me what's your main concern about Farida today?

Mrs Sara:
Yeah Dr I'm very worried Farida had repeated infections in her private area, she has some scratches I'm not comfortable with that, also I went to the GP and prescribed cream but I'm not happy with that.

Dr. Ali:
I can understand your concern; it must be very frustrating for you. When we examined Farida, we found that she has a condition called vulvovaginitis, have you heard about it before?

It's an inflammation in the vulva, which is the outer area of the private area, and the vagina is the inner birth canal, this area got repeatedly inflamed because the protective layer which is formed by oestrogen is not well developed yet.



Mrs Sara:
Why she has this vulvovaginitis?

Dr. Ali:
It's common in girls because immaturity of the private area makes it easily irritated by any thing like friction with nylon clothes, too tight clothes, using of bubble bath and a lot of soap and detergent, chlorinated water all this could be irritant to this fragile area.

Sometimes caused by infection by various organisms, other non-infectious causes like contact with irritant chemical wash or sprays and some medical conditions like diabetes.

Mrs Sara:
Aha, but dr sometimes she plays outside with older children I'm afraid if there is any bad manipulation with her could be the cause of this, do you think that any abuse could be a reason for this repeated vulvovaginitis?

Dr. Ali:
I can understand your worries Mrs Sara, vulvovaginitis is quite common condition and can occur to any girl without any relation to physical abuse, but if you have any other concern regarding sexual abuse or you feel that your girl is unsafe just open up with us to investigate about it, because the welfare of the child is our priority, however if your concern based only on vulvovaginitis I want to assure you that it's not caused by sexual abuse.

Mrs Sara:
Do you think that swimming could increase the chance of this inflammation because she goes to swimming classes 3 times a week, and do you recommend to stop swimming?

Dr. Ali:
Yes there is some relation between swimming and vulvovaginitis as this area got irritated by contaminated water or chlorinated water, tight clothes but it doesn't mean to stop swimming but there is some precautions should be taken to prevent it like to change her clothes immediately after finishing the class, to take shower as early as possible or to rinse this area with clean water, not to use to tight clothes. Also sometimes we can prescribe emollients to decrease this inflammation. How do you find the idea?

Mrs Sara:
But she is not improving at all on this cream prescribed by the GP, I don't know why he prescribed it !

Dr. Ali:
Because sometimes vulvovaginitis could be caused by infection called fungal infection that's why he prescribed this cream to decrease irritation. But when we examined her now, we found it's simple vulvovaginitis so whether you continued this cream or not without following these precautions she will continue to have these attacks, that's why following these precautions is very important.

Mrs Sara:
When will she grow out of which?

Dr. Ali:
This is very good question Mrs Sara, most girls grow out of it naturally around puberty, when oestrogen levels rise. This causes the vaginal lining to mature and become more resistant to irritation. So, symptoms often improve significantly by the time they start their periods (usually between ages 10 and 13).

In the meantime, managing triggers—like avoiding perfumed soaps, using plain water for washing, and practising good hygiene—can greatly reduce flare-ups.

At any time if she has any burning sensation with peeing or difficult urination or raise of temperature, or presence of some discharge or bad smell of the pants don’t hesitate to come back.

I’ll give you leaflet with this information, and if you don mind I’ll summarize to you what we have discussed to make sure that everything is clear.

Most Imp points:

❓ What is vulvovaginitis?

- Inflammation of the **vulva (outer genitalia)** and **vagina (inner canal)**.
- Common in young girls due to **low oestrogen levels**, leading to a thin, sensitive vaginal lining.

🧼 Common Causes

- **Non-infectious irritants**:
  - Chlorinated swimming pools
  - Tight/nylon clothing
  - Bubble baths, perfumed soaps, detergents
- **Poor hygiene** or friction from activities
- **Infectious causes**:
  - Fungal infections (e.g. candida)
  - Bacterial infections
  - Less commonly, parasitic or viral
- **Other medical conditions**: e.g., **diabetes**

👮 Could this be abuse-related?

- **Vulvovaginitis alone is not a sign of abuse.**
- However, healthcare providers are open to concerns—**child welfare is the top priority**.
- Abuse suspicion should be based on a **broader set of signs or context**, not just recurrent irritation.

🏊 Is swimming a contributing factor?

- Yes, **chlorinated water** and **tight swimsuits** can irritate the area.
- **Swimming should not be stopped**, but:
  - Change into dry clothes immediately after swimming
  - Rinse or shower promptly
  - Avoid tight swimwear
  - Consider using **emollient barrier creams**

💊 Why was Daktarin prescribed?

- It is an **antifungal treatment**, used in case the irritation is due to **candida (thrush)**.
- If not effective, it suggests the cause is likely **non-infectious irritation**.

📉 Why is she not improving?

- Treatment alone won’t help if **triggers are not removed**.
- Importance of **combining medical treatment with lifestyle and hygiene measures**.
- Without changes (e.g., hygiene, clothing, bathing habits), infections can keep recurring.

⏳ When will she grow out of it?

- Most girls improve **naturally by puberty** (around **ages 10–13**), when oestrogen increases.
- The vaginal lining thickens and becomes more resistant to irritation.

🚨 When to Seek Medical Help

- Burning or pain with urination
- Fever
- Abnormal or foul-smelling discharge
- Worsening or persistent symptoms despite care

📝 Final Advice to Parents

- Follow hygiene and preventive care strictly
- Avoid irritants (soaps, tight clothes, harsh detergents)
- Continue swimming with precautions
- Watch for infection signs
- Reassurance: **This condition is common and usually resolves with age**

DMSA

Background information:
Hassan 9-month-old, known to have VUR G3 in the Lt kidney. So DMSA scan was done it found that Hassan his Lt kidney functions decreased by 30%, while the Rt kidney function is normal.

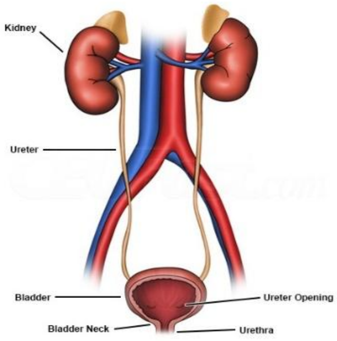
Task:
Discuss with Mrs Sara mother of Hassan about the diagnosis and results of DMSA and answer all her concerns.

Role:
Dr. Nada ST4 paediatric registrar.

Dr Nada:
Mrs Sara I'm here today to discuss with you the results of the scan done for Hassan, do you want any one to attend this meeting with you?

Mrs Sara:
No, I'm here alone.

Dr Nada:
So Mrs Sara the scan done for Hassan is to check the function of the kidney, it revealed that the Lt kidney function is reduced by 30% while the Rt kidney function is normal. Am I clear?



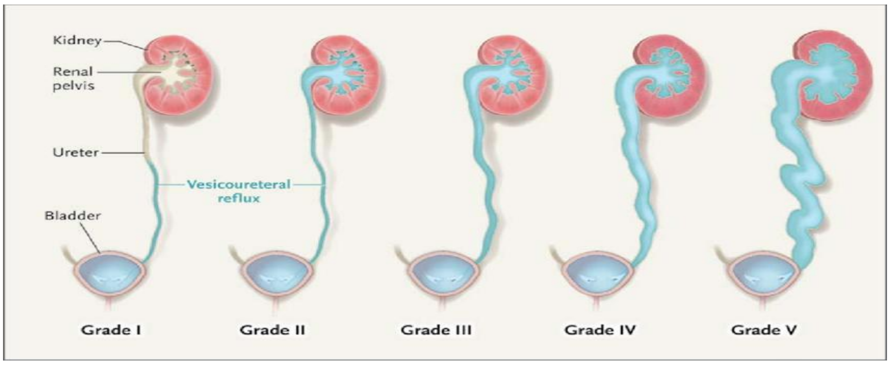
Mrs Sara:
Why that happened does this mean his kidney damaged?

Dr Nada: Draw
Let me explain to you could you follow my drawing
This is our kidney system formed of 2 kidneys and 2 tube that drain the urine called ureter to the reservoir called the bladder which collect the urine till peeing.

When we inject the dye, the kidney should absorb this dye. The whole Rt kidney absorbed the dye which means it function properly, while 1/3 of Lt kidney didn't absorb the dye which mean part of the kidney is not functioning anymore.

The exact reason here is that his having something called VUR. Which means that the urine instead of going downward it goes upward. And grade III means this upward passage of urine caused swelling in the ureter, causing pressure on the kidney causing its damage.

Also, it causes recurrent infection and each time the kidney got infected this leave scar which means damage of the tissue which affect the function.



Mrs Sara:
What is the normal kidney function, what does it mean that the kidney function decreased by 30%?

Dr Nada:
Both kidneys supposed to work by 100%, 50% on the Rt and 50% on the Lt. when we loose 1/3 of the function of one kidney the good news that the other kidney will compensate for the damaged areas on the other side. So I want to assure you that the kidney it self and the other kidney will compensate for that damage.

Mrs Sara:
What is the risk of further kidney damage? Is there anything I can do to preserve Hassan's kidney?

Dr Nada:

- We need to prevent further damage by taking antibiotics which is called antibiotics just in case till the reflux resolve which mostly occur at the age of 5 or till the kidney dr decide.
- Ensure giving him enough fluids to maintain good function of the kidney.
- You need to attend FU with the dr as been prescribed. And to watch closely for any sign of infection, like fever, pain with peeing, different smell or colour of pee or any unexplained illness like being irritable or unsettled.
- Always swipe from front to back not from back to front, with frequent change of the diapers.
- Ensure the child doesn't have any constipation as constipation can cause recurrent UTI.

Mrs Sara:
Can he play and has normal life with this damaged kidney?

Dr Nada:
I wanna assure you No restriction of activity required for cases of VUR, as long as no complications as infection or chronic kidney damage, however if he developed any pain or raised temperature don't hesitate to come back.

Mrs Sara:
Is there any possibility to grow out of this and his kidney function go back to normal?

Dr Nada:
I can understand how worried you are about your child, let me reassure you that most of

VUR improve within 5 years because the valve between the bladder and the ureter becomes more developed while the child grows up, during this period we need close FU and monitoring.

But regarding the results of the DMSA scan the damage that already happened to the kidney will not go back but the good news that the other kidney will compensate with that and the child could appear normal and don't have risk of kidney failure.

Mrs Sara:
Could we consider surgery?

Dr Nada:
This is very good question, most children with GIII VUR resolve by its own at age of 5 years and usually doesn't need intervention, just watchful waiting is enough and continuation of antibiotics and the previous instructions.

Most IMP points:

🧪 DMSA Scan

- DMSA (dimercaptosuccinic acid) scan:
    - Assesses **renal scarring** and **differential renal function**.
    - Used **4–6 months after febrile UTI** in children <3 years with atypical or recurrent UTI (NICE CG54).
    - **Safe and low-radiation** procedure.
    - No recovery of scarred tissue, but compensatory function from healthy kidney is common.

🔁 Vesicoureteral Reflux (VUR):

- **Grades I–V**: Grade III involves **moderate reflux with ureteral dilation**.
- Most cases, especially **Grade I–III**, resolve **spontaneously by age 5–6 years**.
- **Conservative management** is preferred:
    - Prophylactic antibiotics.
    - Monitoring for infections.
    - Surgery (e.g., ureteral reimplantation) is reserved for **severe, persistent, or complicated cases**.

Preventing Further Kidney Damage:

- **Prophylactic antibiotics** to prevent further UTIs until reflux resolves (often by age 5).
- Encourage **adequate fluid intake**.
- Monitor for signs of UTI: fever, pain with urination, unusual smell/color of urine, irritability.
- Maintain **good hygiene** (front-to-back cleaning, frequent diaper changes).
- **Avoid constipation**, which can worsen VUR and increase infection risk.
- **Regular follow-up** with pediatric kidney specialists is essential.

UTI

Background information:

3-month-old baby presented to A&E very ill, dehydrated, low grade fever with sepsis like picture. Canula was inserted to him started empirically on ceftriaxone and IVF, improved within 24 hrs. His urine culture came positive for E.coli.

Task:

Discuss with Mrs Fatma mother of Ali about the condition and answer all her concerns.

Role:

Dr. Ramy ST4 paediatric registrar.

Dr Ramy:
Mrs Fatma I want to discuss with you Ali's condition. Can you first tell me what do you know so far about him?

Mrs Fatma:
Ali was so ill yesterday I don't know what was the wrong with him but suddenly I found him not able to feed or even to cry, he was slightly feverish. But thanks God today he is better. But I want to know what happened to him, I was so scared I feel I'm gonna lose my baby.

Dr Ramy:
I'm sorry about that Mrs Fatma it must be hard time for you. I'll explain everything to you know, when Ali presented to us yesterday, he was **very ill**, his examination reflects he has infection, that's why we did some tests for him, and we found that he has infection in his kidney system we call it **urinary tract infection.** Am I clear till now?

Mrs Fatma:
yeah dr but how this happened to him?

Dr Ramy:
This infection can be caused by different organisms or microbes, in Ali's urine test we found certain type of bacteria called **E. Coli** which is one of the commonest organisms that can cause this infection**.** But the problem was when Ali presented to us was very ill, so this necessitate doing some investigations.

Mrs Fatma:
But why you want to do further investigations, he is getting better now?

Dr Ramy:
This very good question Mrs Fatma, but actually when a child on such age develop UTI with this aggression causing him to be very sick like that its called **atypical UTI** which means it's unlikely to occur in this age in that way, which make us think why that happened ?!

Is it related to **structural abnormality in the kidney**? Or the urine instead of going downward it goes upward in a condition called **VUR**. Which we need to exclude first and we need to check if **affecting the kidney function or not.** Other reasons also could be there that's why **no single investigation or imaging can answer this question.**

Mrs Fatma:
So what is the next step now?

Dr Ramy:
That's very good question, **to answer if there is structural abnormality in the kidney** we need to do urgent gelly scan which is a television picture to see the structure of the kidney and the whole kidney system which we call ***Ultrasound scan***.

To exclude the other cause which is **VUR** we need to do certain image called ***MCUG*** by injecting dye through small tube called catheter through the pee passage and take serial images to see if the dye will go up to the kidney or not.

The third one to **assess any damage occurred to the kidney and assess its function**, we do that by injecting dye into the blood, the kidney will work as a sponge and absorb this dye. If any part of the kidney not absorbing the dye that means that this part of the kidney is not functioning or damaged, this test is called ***DMSA*** scan.

Now we need to schedule all of these investigations. I do understand it's a single infection but its totally atypical one so its mandatory to do all of these tests.

Mrs Fatma:
So when will you do that Dr?

Dr Ramy:
We will start with **urgent US before discharge** and for the MCUG we need to be sure that the child is free from any infection before doing it, this will take few months, and for the DMSA usually done after 4 months or more from the infection.

So you just need to follow with the team and they will provide you with all the appointments.

Mrs Fatma:
Is there anything I can do to prevent it from happening?

Dr Ramy:
Be aware of any sign of infection and at any time if you found any of it don't hesitate to come to us immediately.
Ensure good fluid intake.
Frequent change of the diapers.
Wash your hand before changing the diaper.
Wipe from front to back.
Manage any constipation as it increases risk of UTI.

Most IMP notes:

Urinary tract infections in infants often present **non-specifically**, especially in babies under 3 months, making diagnosis more challenging.

General Symptoms (especially in infants <3 months):

- **Fever** (often the only sign)
- **Poor feeding**
- **Vomiting**
- **Lethargy or irritability**
- **Failure to thrive**
- **Jaundice** (especially prolonged neonatal jaundice)
- **Hypothermia** (low body temperature)
- **Seizures** (in rare, severe cases)

Urinary Symptoms (more noticeable in older infants):

- **Foul-smelling urine**
- **Cloudy urine**
- **Frequent or painful urination** (may show as crying while urinating)
- **Dribbling or poor urine stream**
- **Blood in urine (hematuria)**

Abdominal and Other Signs:

- **Abdominal distension**
- **Suprapubic or flank tenderness** (difficult to elicit in infants)
- **Palpable bladder or kidney mass**

⚠ **Red Flags Requiring Urgent Medical Attention:**

- High fever with no obvious source
- Poor feeding and lethargy
- Seizures
- Vomiting with no other cause

Typical UTI (in infants and children):

- Child is **systemically well**.
- **Bacteria confirmed** in urine culture (e.g., *E. coli*).
- **Responds well** to antibiotics within 48 hours.
- No features suggestive of structural or functional abnormality.
- **No previous UTI** history.

◆ **Atypical UTI (requires further investigation):**

Defined by the presence of **any one or more** of the following:

1. **Seriously ill child**
2. **Poor urine flow**
3. **Abdominal or bladder mass**
4. **Raised creatinine**
5. **Failure to respond to antibiotics within 48 hours**
6. **Non-*E. coli* organisms** on urine culture
7. **Infection recurrence within 6 months**

◆ **Recurrent UTI is defined as:**

- **≥2 upper UTIs**, or
- **≥1 upper UTI + ≥1 lower UTI**, or
- **≥3 lower UTIs**

- **Atypical UTI** in infants suggests possible **underlying causes**, such as:
  - **Structural abnormalities** in the kidney or urinary tract.
  - **Vesicoureteral reflux (VUR):** backward flow of urine to the kidney.
  - Potential **kidney function damage**.

Required Investigations for atypical UTI:

1. **Ultrasound Scan (US):**
   - To assess kidney structure.
   - Done **urgently before discharge**.
2. **MCUG (Micturating Cystourethrogram):**
   - To check for **VUR**.
   - Requires baby to be **free of infection**; done **after a few months**.
3. **DMSA Scan:**
   - To assess **kidney function and damage**.
   - Done **around 4 months after infection**.

Communication
Important topics in
Neurology

Refaat

By Dr Ghada Refaat

Epilepsy with nursery nurse

Background information:
Adam 4 years old newly joined the nursery. He suddenly developed fit; they have previous knowledge about his diagnosis of epilepsy but it's the first time to see the attack. The children were frightened and so all the teachers and care givers. Now the nursery nurse Mrs Noha came to you to know more about epilepsy and how to deal with Adam if he developed fits again.

Task:
Discuss with Mrs Noha about epilepsy and answer all her concerns.

Role:
Dr. Ramy ST4 paediatric registrar.

Mrs. Noha:
Doctor, I was so worried today. Adam had a fit in the nursery, we know he had epilepsy but we don't know how to deal with. The children and staff were frightened. Can you explain what epilepsy is and what we should do if this happens again?

Dr. Ramy:
Of course, Mrs. Noha. I completely understand how unsettling it must have been for you and the children. Let's go step-by-step.

Epilepsy is a condition where a person tends to have recurrent seizures due to abnormal electrical activity in the brain. Seizures can look different — sometimes full-body shaking (generalised tonic-clonic seizures), sometimes brief staring or unusual movements. It's important to remember having one seizure does not always mean epilepsy, but Adam already has a diagnosis, so he may be more prone to further episodes.

Mrs. Noha:
can children with epilepsy go to mainstream school?

Dr. Ramy:
yeah of course they can go to mainstream school, but the school should be informed about the child condition and how to deal with if he got the attack in school.

Mrs. Noha:
I see. So, what exactly should we do if Adam has another fit at nursery?

Dr. Ramy:
The key is **safety first** and to follow a calm, structured approach:

1. Keep him safe:

- Gently lower him to the floor or a safe surface.

- Move any hard or sharp objects away.
- Loosen tight clothing around the neck.

2. Do not restrain him and **do not put anything in his mouth** — this could cause harm.

3. Time the seizure:

- Most seizures stop within 1–2 minutes.
- If the seizure lasts **longer than 5 minutes**.
- Give the rescue medication as been prescribed in the action plan.
- Call 999 immediately.

4. After the seizure:

- Place Adam in the **recovery position** (on his side, head tilted slightly back) to keep the airway clear.
- Stay with him until he is fully alert and responsive.
- Expect him to be confused, tired, or sleepy — this is called the post-ictal phase.

5. Call parents and follow the agreed care plan once we establish one with his family and GP.

Mrs. Noha:
Does he need medicine during the fit?

Dr. Ramy:
Usually, most seizures stop on their own. However, some children need a rescue medicine — often **buccal midazolam** — if their seizures are prolonged than 5 mins, or they have a known pattern. We will confirm with Adam's parents and provide you with a **written seizure management plan** if he needs one, This plan will include:

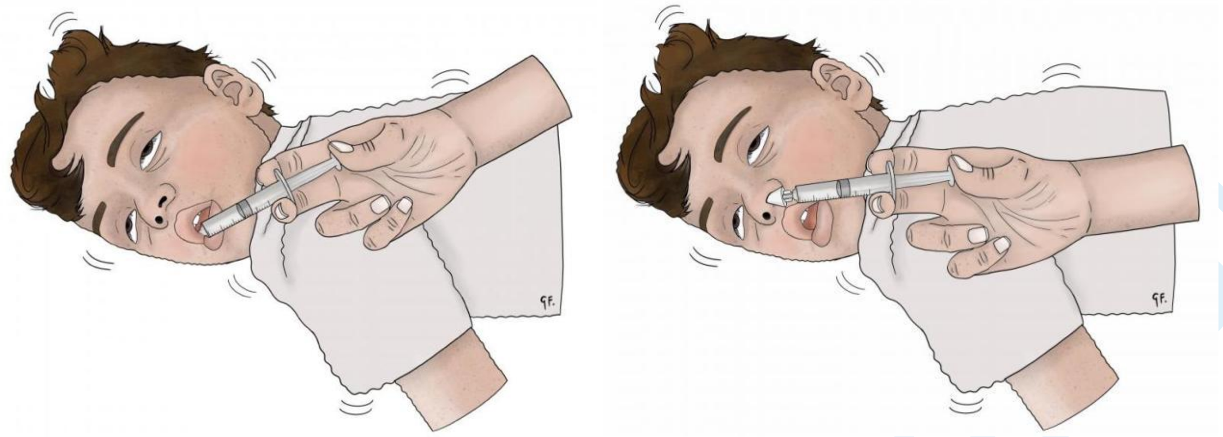
- Seizure description.
- What to do during and after.
- When to give rescue medication (if applicable).
- When to call an ambulance.

Mrs. Noha:
Can you tell me how to give this medication?

Dr. Ramy:
Its prefilled syringe, Check the dosage and withdraw the amount which will not be given. Just keep the dose only in the syringe. Then place the syringe in the side of the cheeks while the child is on his side and gently squeeze the medication, the aim is to keep the medication in the mouth only to be absorbed from the buccal mucosa and floor of the mouth and not swallowed to avoid chocking.

After that stay with the child, monitor for any side effects, and call 999 if the child is not responsive and still seizing.

And of course, we can provide you with training session to know how to give the rescue medication in a good way.



For children aged 10 years to
years
BUCCOLAM® 10 mg
Oromucosal Solution
Midazolam
For oromucosal
Remove the
oral syringe cap
BUCCOLAM
Oromucosal Solution
Midazolam
For oromucosal use only

Mrs. Noha:
What is the side effects of it?

Dr. Ramy:
it can leave the child drowsy or sleepy sometimes it can cause shallow slow breathing, but this is rare it usually occurs if the child received to much medication than the recommended dose. That’s why it’s important to give the medication exactly as prescribed in the action plan

Mrs. Noha:
His mother gave us Epilim to give him regularly every day can we give it at the time of the attack instead of this buccal midazolam?

Dr. Ramy:
No, Epilim is oral medication and during the attack no thing should be given per mouth to be swallowed we only can give this midazolam whether nasal or buccal to be rubbed in the cheeks.

Mrs. Noha:
Is there any preparations we should have in the nursery cabinet for children with epilepsy?

Dr. Ramy:
You should have the buccal midazolam, call number for rescue team, trained personnel in each shift who knows how to deal and how to give the rescue medication, action plan for each child.

Mrs. Noha:
Any precautions to be taken at school?

Dr. Ramy:
yeah the teachers should know about the epileptic attack and to know how to put the child in safe area in recovery position and call for help.

Also we need to avoid some triggers like contact sport also Vigorous play in very hot environments can sometimes trigger seizures. Allow breaks and access to water.
Emotional distress can sometimes trigger seizures. Try to keep transitions calm, use familiar routines, and give reassurance.
Avoid strobe lights, certain computer games, or high contrast flickering images.
should also be observed during swimming lessons.

Mrs. Noha:
I have other 3 colleagues can you talk with them about Adam condition?

Dr. Ramy:
We can firstly ask the parents for a permission. But in general it's better to arrange meeting with them to talk about epilepsy and how to deal with and how to use the action plan and demonstrate how to give the rescue medication to be able to deal with any case of epilepsy.

Mrs. Noha:
That helps. What about the other children? They were scared.

Dr. Ramy:
That's very common. Children may feel frightened seeing a seizure for the first time. Once Adam is safe, and another staff member can stay with him, you might reassure the others:
"Adam is having something called a seizure. His brain is sending mixed signals, but it will pass, and he is not in pain. We are helping him stay safe."
We can also arrange a simple age-appropriate talk later, so they understand and are less fearful.

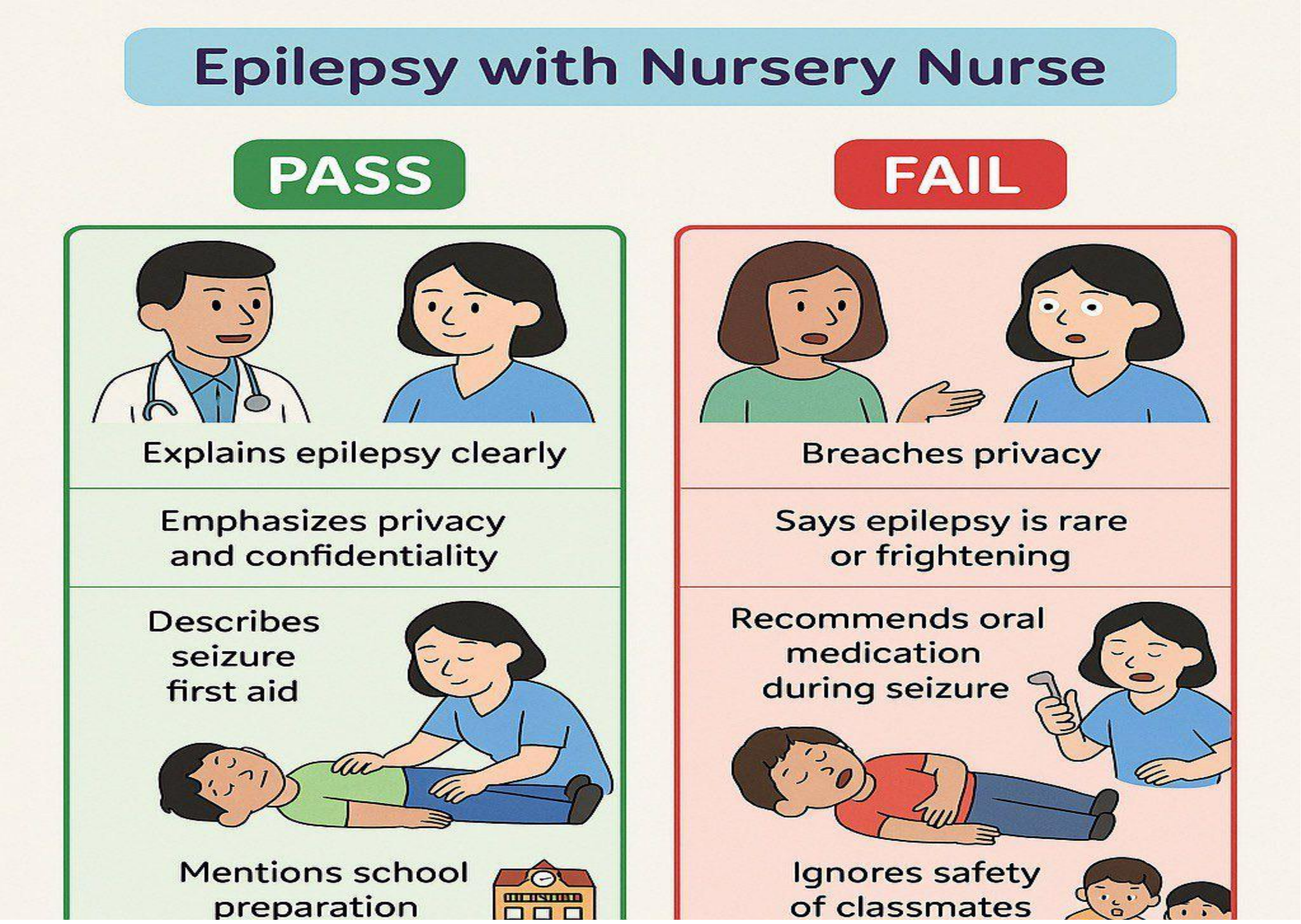
Mrs. Noha:
Thank you, doctor. I feel more confident now.

Dr. Ramy:
You're welcome. I'll liaise with Adam's parents, GP, and epilepsy nurse so you receive full training and a care plan. You did the right thing today by keeping him safe and calling for help.

IMP Key points

- Epilepsy is a condition causing recurrent seizures due to abnormal electrical brain activity.
- Children with epilepsy can attend mainstream schools if staff are informed and trained.
- **Seizure first aid steps:**
  - Keep the child safe (move hazards, loosen tight clothing).
  - Do not restrain or put anything in the mouth.
  - Time the seizure.
  - If >5 minutes, give prescribed rescue medication and call 999.
  - After seizure, place in recovery position and stay until fully alert.
  - Inform parents and follow care plan.
- Most seizures stop on their own; some require rescue medication (e.g., buccal midazolam).
- Buccal midazolam is given in the side of the cheek; do not give oral medication like Epilim during a seizure.
- Possible side effects of midazolam: drowsiness, rarely slow breathing (more likely if overdosed).
- Nursery should have:
  - Child's rescue medication.
  - Emergency contact numbers.
  - Trained staff on every shift.
  - Individual action plan for each child with epilepsy.
- **Triggers to avoid at school:**
  - Contact sports and vigorous play in hot conditions without breaks.
  - Emotional distress, sudden changes in routine.
  - Flashing/strobe lights, certain video games, high-contrast flickers.
  - Skipping meals, dehydration, lack of sleep.
  - Observe closely during swimming lessons.
- Staff should be trained to reassure other children after witnessing a seizure.

Refaat


Epilepsy with Nursery Nurse
PASS
FAIL
Explains epilepsy clearly
Breaches privacy
Emphasizes privacy and confidentiality
Says epilepsy is rare or frightening
Describes seizure first aid
Recommends oral medication during seizure
Mentions school preparation
Ignores safety of classmates

Stroke in neonates

Background information: A baby delivered full term (FT) and appropriate for gestational age (AGA), his APGAR score was 9. Then suddenly develops hypertonia and seizures and the baby was ventilated. After stabilization US scan done showed ischemic area in the brain the baby was diagnosed with neonatal stroke, the baby was started on phenobarbitone and was sleepy. the mother is so concerned and wants to understand next steps and fate of her baby.

Role: Dr Islam ST4 Registrar.
Task: Explain to Mrs Laila mother of baby Ali about her child condition and answer all her concerns.

Mrs Laila:
My son is born full term and was healthy… Now he is sleepy and on breathing machine. Why this happened to him?

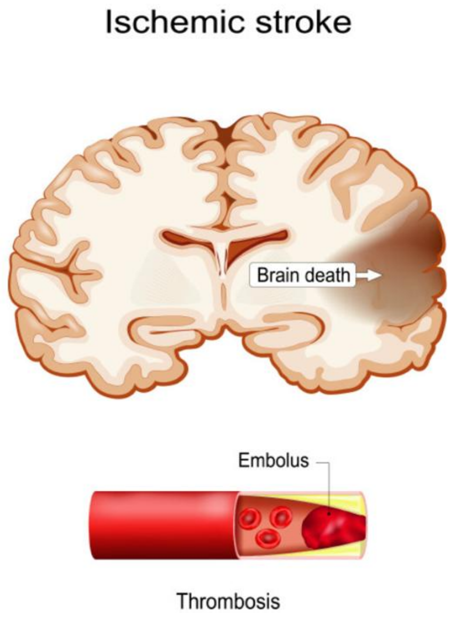
Dr Eslam:
I understand your worry. When we examined your baby and did scan for his head we found he has a condition called stroke.

Oh my god stroke my dad had stroke before I thought it only occur to older people, why this happened to my baby.

Stroke can happen in children too. In babies it can be because of many reasons —For newborns, causes can be **genetic problems in blood clotting**, **structural problems in the brain vessels**, **infection**, some **metabolic problems** in processing food, and sometimes without clear reason.

All this causes can cause blockage to the blood supply to certain area of the brain **DRAW**

The brain is very vulnerable and fragile can't cope with cessation with blood supply for moment that's why when we did the scan we found some changes happened which we call hypoxic changes or changes due to decrease the blood and oxygen to the brain.



Mrs Laila:
They told me he had fits, is that right?

Dr Eslam:
yeah Mrs Laila, Fits can happen after stroke because this hypoxic effect cause some irritation to the brain tissue make it more liable for Fits

Mrs Laila:
I feel he is more sleepy than before, why he looks like this?

Dr Eslam:
We started a medication called **phenobarbitone** to control these fits. This medicine can make him sleepy, but that's a known side effect. We weighed the risks and benefits — controlling the fits is more important now. We are watching him closely.

Mrs Laila:
Does having these fits means he will have epilepsy later on?

In most cases, neonatal fits do not continue forever. Many babies could have fits due to any insult occurring to the brain but once managed it doesn't recur. However some insults could have long term effects.

Mrs Laila:
Will my baby be disabled forever?

Dr Eslam:
We can't say now. The effect depends on which part of the brain is affected and for how long it was without oxygen. Some children recover well, especially with early treatment and rehabilitation. If the movement area is affected, there may be weakness; if the speech area is affected, speech may be delayed; but many improve with time and therapy.

Mrs Laila:
What will you do next?

Dr Eslam:
We need detailed pictures of his brain, so we will do a CT or MRI scan. To get a clear image, he must lie still, so we will use conscious sedation — that means he will be semi-asleep with safe medicines. We will keep him fasting before the procedure to prevent choking. We will monitor his breathing and give oxygen if needed. There is always some risk, but the benefit is much more.

Mrs Laila:
And after that?

Dr Eslam:
After **confirming the diagnosis**, we start treatment right away — give oxygen if needed,

give fluids, We may also do a scan of the heart (echocardiogram), brain wave monitoring (EEG), and blood tests to look at clotting, infection, or **other possible causes**.

While your baby is in hospital, we make sure they are **kept stable** — we watch breathing and oxygen levels, keep blood sugar and temperature normal, and treat any seizures quickly.

Some causes of neonatal stroke require **specific treatment**, such as an exchange transfusion in sickle cell disease or blood-thinning medicines if there is a clotting problem, but these are only used in certain situations.

We will also bring in our **therapy team** early — physiotherapy, occupational therapy, and speech therapy — to start gentle rehabilitation as soon as your baby is ready.

From the beginning, a specialist stroke will follow your baby closely, and we will arrange **regular check-ups and scans to monitor recovery** and reduce the risk of another stroke.

While it's not possible to predict the exact outcome now, ***early treatment and ongoing therapy give your baby the best chance to recover and develop well.***

Key points:

☐ Stroke can occur in babies, not only in older people.

☐ Causes in newborns may include genetic clotting problems, structural brain vessel abnormalities, infections, metabolic disorders, or unknown reasons.

☐ Prognosis depends on the brain area affected and how long it was without oxygen; early treatment and rehabilitation can lead to good recovery.

☐ Weakness may occur if the movement area is affected; speech delay may occur if the speech area is affected.

☐ Seizures can follow a stroke; phenobarbitone is used to control them but may cause sleepiness.

☐ Detailed brain imaging (CT or MRI) is needed; conscious sedation may be used to keep the baby still.

☐ Additional **tests** may include echocardiogram, EEG, and blood tests for clotting, infection, or other causes.

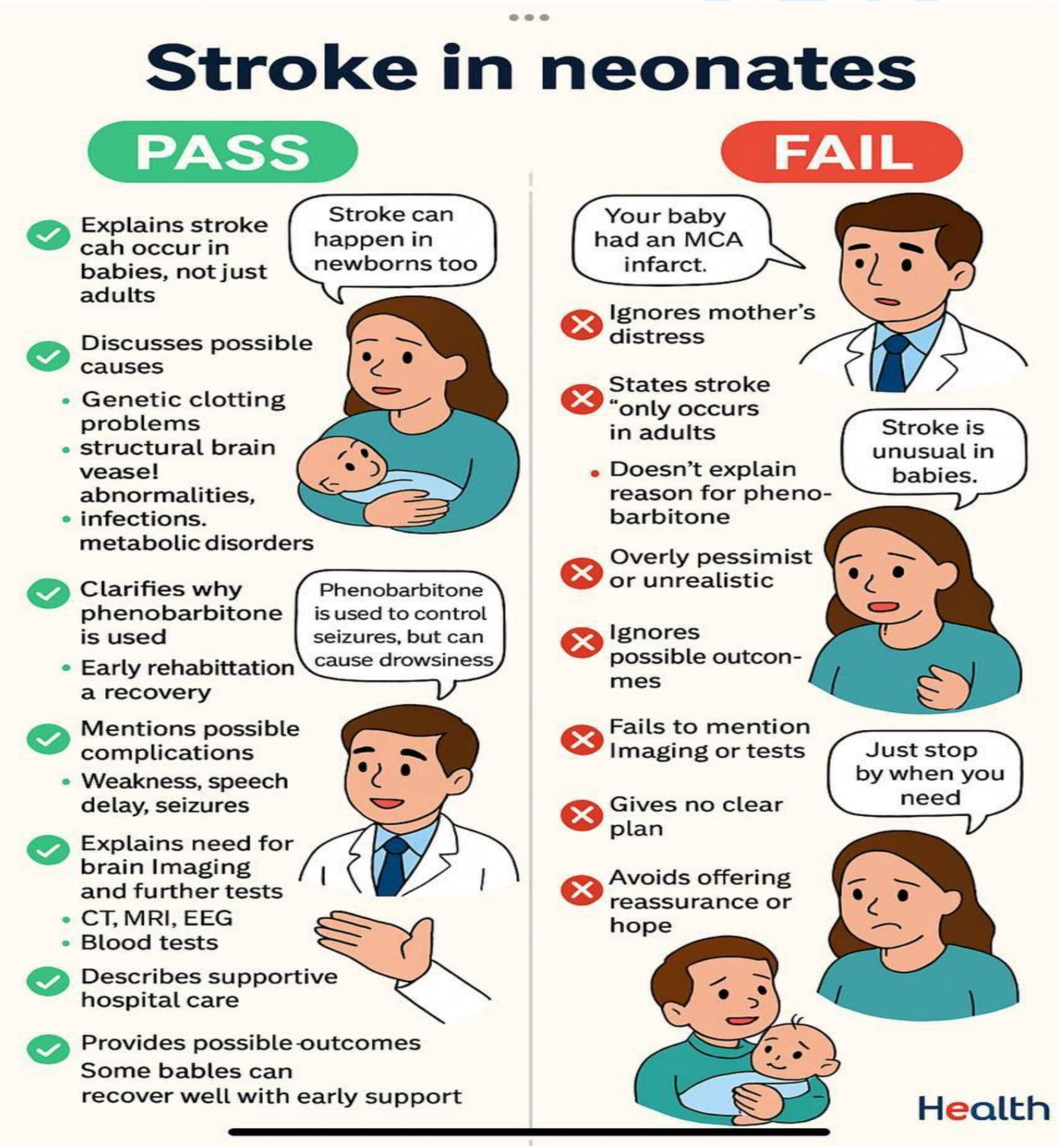
☐ **Supportive hospital care** includes maintaining normal breathing, oxygen levels, blood sugar, and temperature.

- **Specific treatments,** like exchange transfusion or blood thinners, are used only when indicated.

- Early involvement of physiotherapy, occupational therapy, and speech therapy supports recovery.

- Regular **follow-up** with a specialist stroke team helps monitor recovery and prevent recurrence.

- **Outcome** cannot be predicted immediately, but early intervention improves the chances of good development.



Stroke in neonates

PASS

- ✓ Explains stroke cah occur in babies, not just adults
- ✓ Discusses possible causes
  - Genetic clotting problems
  - structural brain vease! abnormalities,
  - infections. metabolic disorders
- ✓ Clarifies why phenobarbitone is used
  - Early rehabittation a recovery
- ✓ Mentions possible complications
  - Weakness, speech delay, seizures
- ✓ Explains need for brain Imaging and further tests
  - CT, MRI, EEG
  - Blood tests
- ✓ Describes supportive hospital care
- ✓ Provides possible outcomes Some bables can recover well with early support

FAIL

- ✗ Ignores mother's distress
- ✗ States stroke "only occurs in adults
  - Doesn't explain reason for pheno-barbitone
- ✗ Overly pessimist or unrealistic
- ✗ Ignores possible outcon-mes
- ✗ Fails to mention Imaging or tests
- ✗ Gives no clear plan
- ✗ Avoids offering reassurance or hope

Stroke can happen in newborns too
Phenobarbitone is used to control seizures, but can cause drowsiness
Your baby had an MCA infarct.
Stroke is unusual in babies.
Just stop by when you need
Health

Infantile spasm

Role: **Dr Sameh Paediatric registrar**
Background: **Dr Hussien ST1 trainee have just demonstrated a case of 4 month child with infantile spasm, he doesn't know what is infantile spasm and how it is treated.**
Task: **Explain to Dr Hussien what is infantile spasm, how could it be diagnosed and managed and the prognosis.**

Dr. Sameh:
Alright Hussein, so you've got a child here with possible infantile spasms. Let's go through it together. First, tell me — what do you understand by *infantile spasm*?

Hussein:
I think it's some kind of seizure in babies, but I'm not sure exactly how it looks. And what is the pathophysiology of it?

Dr. Sameh:
Exactly — they're seizures, usually in infants between 3 and 12 months. They're brief, sudden, and often symmetric contractions of the neck, trunk, and limbs. Parents might say, "The baby's head drops" or "He bends forward like a jackknife." It's like startle reflex without stimulus. They often happen in clusters, especially after waking.

The pathophysiology is: Abnormal electrical discharge in cortex or brain stem lead to this spasm. It's caused by disruption of inhibitory mechanism of the brain causing discoordination between cortical and subcortical area.

Hussein:
So what causes these spasms?

Dr. Sameh:
Three big categories:

1. **Idiopathic** – have no cause. Usually follow clinical pattern if treated early
2. **Symptomatic** – clear cause, like brain injury at birth (HIE), structural malformations, metabolic issues, genetic syndromes (e.g., tuberous sclerosis), or infections like CMV or herpes.
3. **Cryptogenic** – we can't find the cause yet, but we suspect there's an underlying brain problem.

Hussein:
And is there any risk factor for that?

Dr. Sameh:
Risk factors include: Prematurity, family history of epilepsy, intrauterine insults.

Hussein:
I've heard about "Hypsarrhythmia" in relation to these. What is that?

Dr. Sameh:
That's the classic EEG pattern for infantile spasms. Imagine total chaos — high-amplitude, asynchronous

spikes and slow waves, all over the place. That disorganized background tells us the brain's electrical activity is seriously disturbed.

Hussein:
Is EEG is the only way for diagnosis?

Dr. Sameh:
first we need to get full history from the parents with good explanation of the attacks. The EEG is the diagnostic method for infantile spasm but we need also to have some imaging and labs to know the possible cause.

Hussein:
And what's the difference between infantile spasm and West Syndrome?

Dr. Sameh:
Good question. *Infantile spasm* is just the seizure type. *West Syndrome* is a triad:

1. Infantile spasms
2. Hypsarrhythmia on EEG
3. Developmental delay or regression
   So West Syndrome is the bigger picture — not all children with infantile spasms have full West Syndrome.

Hussein:
How do we treat them?

Dr. Sameh:
We move fast — every day matters for brain development.

- First-line is high-dose steroids with **vigabatrin**.
- If the child has tuberous sclerosis, **vigabatrin** works best alone.
- And, of course, treat the underlying cause if we can.

Hussein:
Does vigabatrin has side effects?

Dr. Sameh:
it can affect the vision causing blurred vision and visual field defects that's why we need to follow up the vision closely.

Hussein:
How do we know it's not something else like a startle reflex or tonic seizure?

Dr. Sameh:
Right — tonic seizures last longer and don't usually come in clusters. Startle reflexes are triggered by noise or touch and have no EEG changes. Infantile spasms often happen spontaneously, in clusters, and the EEG shows hypsarrhythmia.

Hussein:
What about prognosis?

Dr. Sameh:
If it's idiopathic and we treat early — good chance for a better outcome. If it's symptomatic from a

structural or genetic problem, prognosis is worse. Untreated or delayed treatment can lead to significant intellectual disability and developmental delay.

Hussein:
Got it. So basically — suspect early, confirm with EEG, search for a cause, and start treatment right away.

Imp key points:

- **Definition:** Seizures in infants (3–12 months), brief, sudden, symmetric contractions of neck, trunk, limbs; often in clusters after waking; may mimic startle reflex without stimulus.

- **Pathophysiology:** Abnormal electrical discharge in cortex/brain stem due to disrupted inhibitory control causing discoordination between cortical and subcortical areas.

- **Causes:**

  1. Idiopathic – no known cause.
  2. Symptomatic – due to brain injury, structural malformation, metabolic disorder, genetic syndrome (e.g., tuberous sclerosis), infections (e.g., CMV, herpes).
  3. Cryptogenic – suspected brain problem without identified cause.

- **Risk Factors:** Prematurity, family history of epilepsy, intrauterine insults.

- **Hypsarrhythmia:** EEG pattern with chaotic, high-amplitude, asynchronous spikes and slow waves.

- **Diagnosis:** Clinical history + EEG confirmation; imaging and labs to identify underlying cause.

- **Difference from West Syndrome:** West Syndrome = triad of infantile spasms + hypsarrhythmia + developmental delay/regression.

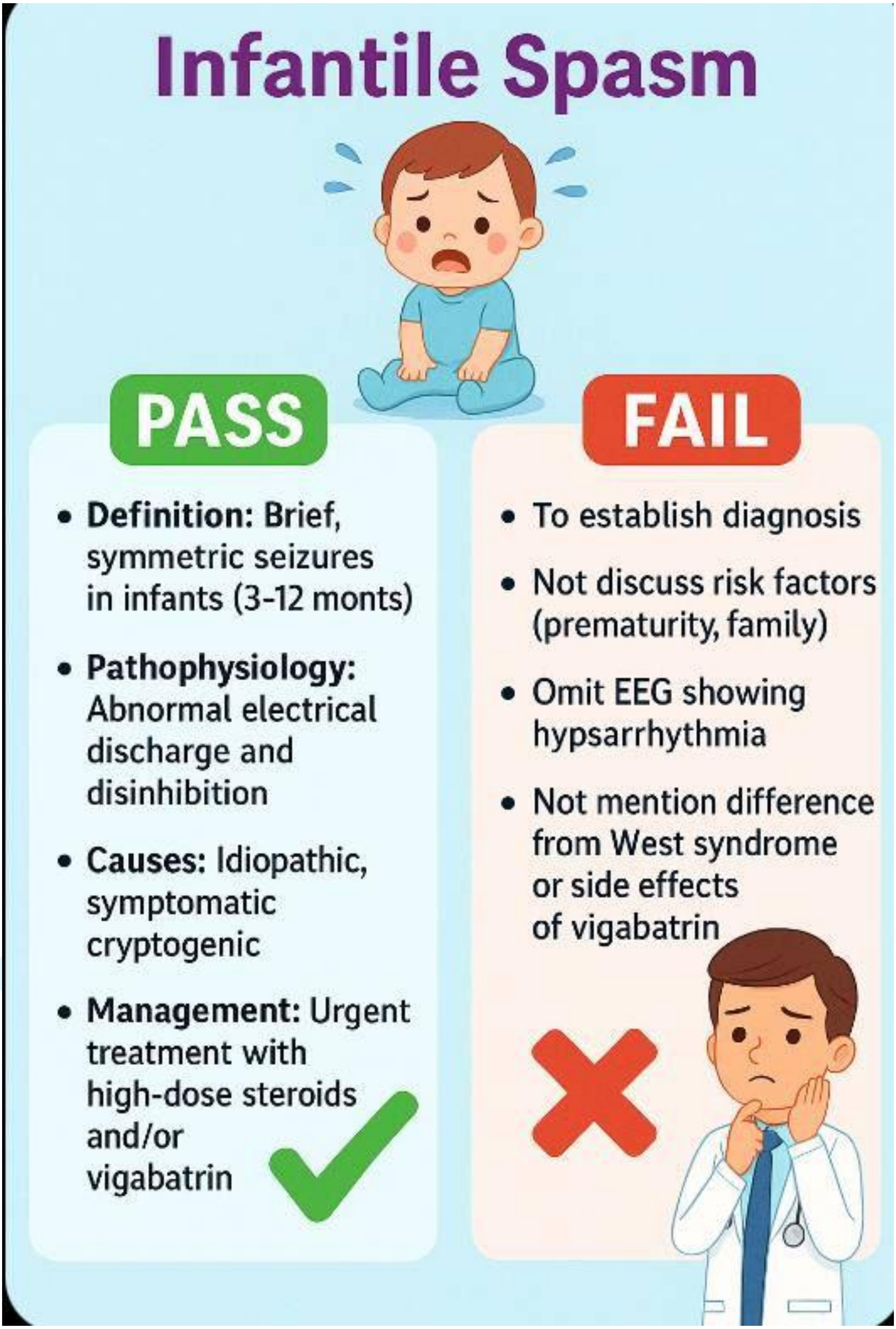
- **Management:** Urgent treatment — high-dose steroids ± vigabatrin; vigabatrin alone if tuberous sclerosis; treat underlying cause.

- **Vigabatrin Side Effects:** Visual disturbances (blurred vision, visual field defects) — requires regular vision follow-up.

- **Differentiation from Other Conditions:**

  - Tonic seizures: longer duration, not in clusters.
  - Startle reflex: triggered by noise/touch, no EEG changes.

- **Prognosis:** Better if idiopathic and treated early; worse with symptomatic causes; delayed treatment → high risk of intellectual disability and developmental delay.



Infantile Spasm

PASS

- **Definition:** Brief, symmetric seizures in infants (3-12 monts)
- **Pathophysiology:** Abnormal electrical discharge and disinhibition
- **Causes:** Idiopathic, symptomatic cryptogenic
- **Management:** Urgent treatment with high-dose steroids and/or vigabatrin

✓

FAIL

- To establish diagnosis
- Not discuss risk factors (prematurity, family)
- Omit EEG showing hypsarrhythmia
- Not mention difference from West syndrome or side effects of vigabatrin

Hypoxic ischemic encephalopathy

Background information: Hossam baby just born at full term after abruptio placenta, APGAR3 at 10 min, now the baby is comatosed, on MV, has been diagnosed with HIE. His mother is critically ill in the ICU.

Role: Dr Islam ST4 Registrar.
Task: Explain to the Father Mr Ali the condition of his baby and that we need to start total body cooling for the baby.

Dr Islam:
Mr Ali… first of all, I'm so sorry you're going through this. I know your wife is unwell in the ICU and now Hossam is in intensive care too. This is an incredibly difficult time, and we're here to support you and your family.

Mr Ali:
Thank you, doctor… please tell me what's happening with my son.

Dr Islam:
Of course. Hossam was born after something we call an *abruptio placenta* — that's when the placenta the organ responsible to supply the baby with blood and oxygen, comes away from the womb too early. This meant he didn't get enough oxygen before birth.

When he was born, he was in a very poor condition. We had to give him help to breathe for quite some time.

Right now, he is on a breathing machine and hasn't woken up or responded the way we'd expect. We've diagnosed him with a condition called ***Hypoxic-Ischaemic Encephalopathy*****, or HIE.** That means his brain has been affected because of the lack of oxygen and blood flow around birth.
Have you heard about it before?

Mr Ali:
No Dr

Dr Islam:
Hypoxic' means not enough oxygen
Ischemic' means not enough blood flow
Encephalopathy' means it is affecting the brain.

Low oxygen and/or blood flow to a baby's brain happens most often before or during birth, but it can also happen shortly after birth.

HIE affects the brain, but low oxygen or blood flow can also cause problems in the lungs, liver, heart, bowel and kidneys.

Mr Ali:
So… is it serious?

Dr Islam:
I'm sorry to tell you, it is serious. HIE can lead to long-term problems with movement, learning, or development, and sometimes can be life-threatening. But there is rescue mangement we can do right now that gives him a better chance — and I want to start it as soon as possible.

Mr Ali:
What is that?

Dr Islam:
It's called ***total body cooling***, or **therapeutic hypothermia**. we'll gently cool Hossam's body temperature between 33-34 degrees Celsius. This slows down brain processes that can cause further damage after the lack of oxygen. This rescue treatment should start in the 1st 6 hours after birth. This helps to slow damage to brain cells, prevent further toxins from forming and limiting injury to the brain.

It's the standard treatment for moderate to severe HIE, there's good evidence it can improve the outcome dramatically to the extent that it can decrease the severity of the condition from moderate and sever degree to mild degree.

Mr Ali:
For how long will you do this? And what will happen after?

Dr Islam:
For three days — 72 hours — then we will start to rewarm him gradually over a period of 12 hours till he reaches the normal temperature. During cooling, Your baby's temperature will be monitored closely to ensure that it stays at the right level, During the cooling period, the team will also closely monitor your baby's heart rate and blood pressure, perform blood tests and use a Cerebral Function Monitor (CFM) to record brain activity. They will also monitor your baby's medication and give pain relief and anti-seizure medication if needed.

After rewarming we usually go for detailed brain imaging to know the extent of damage and plan the further management accordingly.

Mr Ali:
But I think its very difficult how you will lower his temperature like that and maintain it at certain level?

Dr Islam:
A special cooling mattress is used to lower the baby's temperature to between 33°C and

34°C . The mattress is filled with fluid that can be cooled or warmed according to your baby's needs.

Mr Ali:
So what is expected to be seen while the child in this cooling?

Dr Islam:
He will be totally naked except for the diaper with lots of probes attached to monitor all his body functions, lines through blood conduit to give fluids for nutrition and some medications that might be needed to support the heart and blood pressure or to manage fits, or pain killers. Now also he is attached to breathing machine via tube passing through his mouth.

Mr Ali:
Will it fix him completely; does it have drawbacks?

Dr Islam:
Of course there is no treatment without draw backs but as we said it's a rescue management and weighing its risk against its benefits the benefit is greatly more.

Cooling may occasionally lead to problems with blood pressure control, abnormal heart rhythm, bleeding and clotting problems, and chemical and sugar imbalances in the blood.

The doctors and nurses looking after your baby are aware of this and will be closely monitoring your baby for signs of these complications. You should also be aware that HIE is a serious illness, and these complications can occur even without cooling.

Mr Ali:
I can't take this decision alone; can I wait for my wife to be ok and take this decision together?

Dr Islam:
I know how its difficult to take such decision alone, I hope your wife get well very soon, but I'm afraid this treatment should be started as early as we can in the 1st 6 hours of life. After this time it will not have any value.

Mr Ali:
Will this condition affect my child later on?

Dr Islam:

Some babies with HIE recover fully and have no long-term problems, while others may develop difficulties with learning, thinking, speaking (cognitive problems) and problems with walking or movement.

That require help and support from healthcare professionals, such as physiotherapists or speech and language therapists. Each baby is unique and the care they receive will be tailored to their needs.

After you have gone home with your baby, you will be offered an appointment to come back to see the paediatrician or neonatal consultant, who will monitor and discuss your baby's progress.

Mr Ali:
This is… a lot. My wife hasn't even seen him yet.

Dr Islam:
"I know, and I can't imagine how hard this must feel. You're dealing with your wife's illness and Hossam's condition all at once. We have a family support team who can talk with you, and there's an organisation called *Bliss* — they support parents of premature and sick babies. They have clear, trusted information and emotional support. The NHS website also explains HIE and cooling therapy in plain language. I can print this for you."

Mr Ali:
Yes, please… I think I need something to read.

Dr Islam:
Of course. And we'll keep updating you every step of the way. We do need to begin the cooling soon — is it okay to go ahead?

Mr Ali:
Yes… please do whatever is best for him.

Dr Islam:
Alright. We'll start now, and I'll be here if you need to talk or ask questions at any time.

Imp key points:

- Hypoxic-*Ischaemic Encephalopathy (HIE)* — brain injury from low oxygen/blood flow. HIE can also affect lungs, heart, liver, bowel, kidneys. Condition is serious; can cause long-term disability or be life-threatening.

- Recommended urgent **total body cooling** within first 6 hours (33–34°C for 72 hours, then gradual rewarming). Within the 1st 6 hours.

- Purpose: slow brain injury, improve outcomes, possibly reduce severity from severe/moderate to mild.

- Process: cooling mattress, close monitoring of temperature, heart, blood pressure, brain activity, and lab tests.

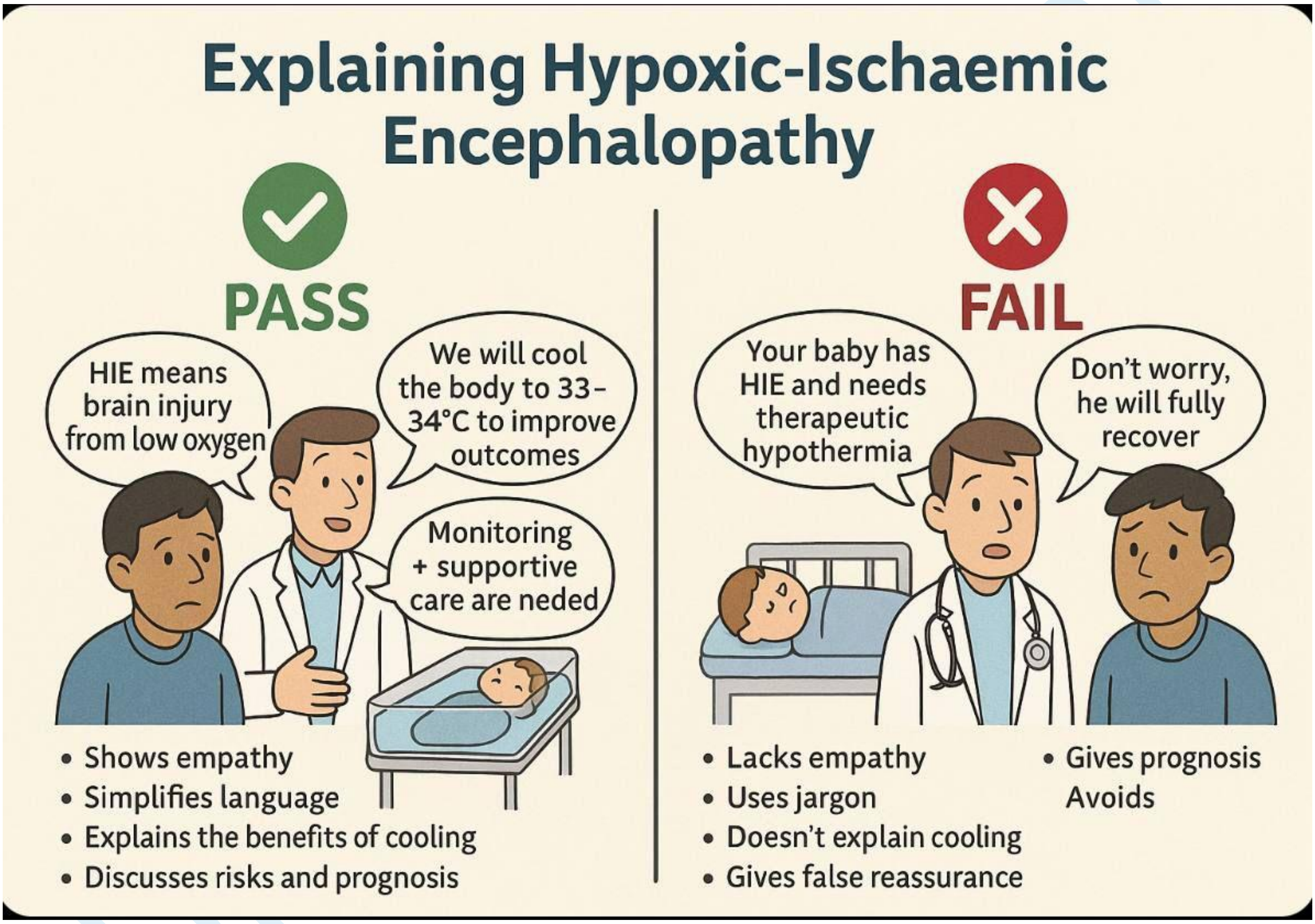
- Supportive care: ventilation, lines for fluids/meds, seizure and pain control.

- Risks: blood pressure changes, heart rhythm problems, bleeding/clotting issues, metabolic imbalances — monitored closely.

- Prognosis varies some recover fully; others may have cognitive, speech, or movement difficulties needing ongoing therapy.

- Follow-up with paediatric/neonatal team after discharge.

- Emotional support available from hospital team, *Bliss*, and NHS resources.


Explaining Hypoxic-Ischaemic Encephalopathy
PASS
HIE means brain injury from low oxygen
We will cool the body to 33–34°C to improve outcomes
Monitoring + supportive care are neded
• Shows empathy
• Simplifies language
• Explains the benefits of cooling
• Discusses risks and prognosis
FAIL
Your baby has HIE and needs therapeutic hypothermia
Don't worry, he will fully recover
• Lacks empathy
• Uses jargon
• Doesn't explain cooling
• Gives false reassurance
• Gives prognosis Avoids

Subarachnoid haemorrhage

Role: **Dr Ola Paediatric registrar**
Background: **Sama, a 4-year-old girl, sustained a head injury after falling from her bicycle. Following the incident, she experienced memory loss and was diagnosed with a subarachnoid haemorrhage and a brain concussion. Appropriate medical management was provided. However, her mother remains deeply concerned about the memory loss.**
Task: **Talk to Mrs Roqaia Sama's mother, about her condition and answer all her concerns.**

Dr. Ola:

Hello, Mrs. Roqaia. I understand this has been a very difficult time for you. I want to reassure you that you're not alone, and I'm here to answer all your questions about Sama's condition and what to expect moving forward.

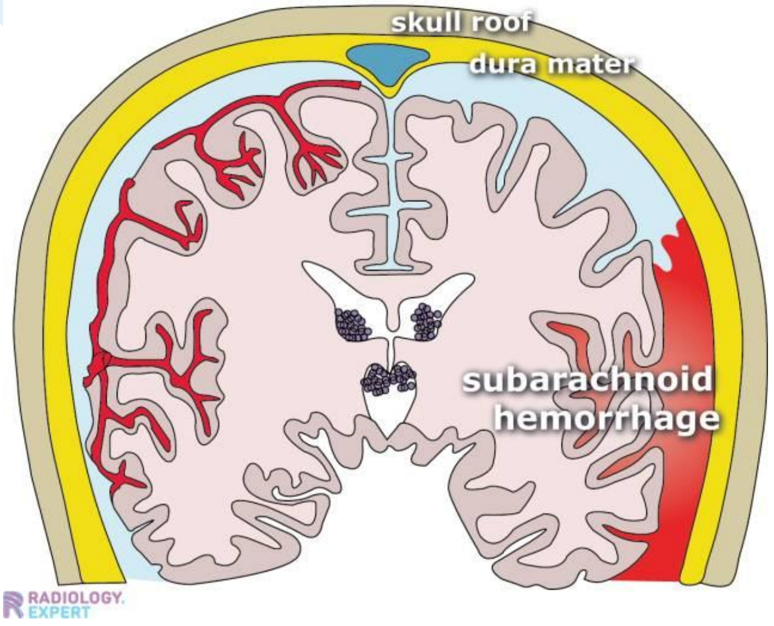
Mrs. Roqaia:

Thank you, doctor. I'm just so worried. She fell so badly… and then she lost her memory. I'm still trying to understand what exactly happened to her brain.

Dr. Ola:

That's completely understandable, and your concern is valid. Sama suffered two types of brain injury from the fall: a **subarachnoid haemorrhage** and a **concussion**.

Let me explain. A **subarachnoid haemorrhage** means there was a small amount of bleeding in the space between the brain and the thin tissue covering it. In children, this can happen with a head injury like a fall. While it sounds very serious—and of course, we treat it with care—these bleeds are often **small and self-limiting**, meaning the body usually **absorbs the blood naturally over time** without needing surgery.



Mrs. Roqaia:
So the bleeding doesn't stay there?

Dr. Ola:
No, in most mild cases like Sama's, the blood is gradually **reabsorbed by the body** over days to weeks. We will monitor her closely, and follow-up scans or clinical reviews will guide us to ensure everything is healing as expected.

Now, about the **concussion**—this is a mild traumatic brain injury. It temporarily affects how the brain works. It can cause symptoms like confusion, tiredness, dizziness, or **memory loss**, which you noticed in Sama.

Mrs. Roqaia:
Yes, that's what's really worrying me. She forgot things… Will she ever recover those memories?

Dr. Ola:
It's very common after a concussion for children to have memory loss, especially about the event itself or the moments before and after. This is usually **temporary**. The brain, especially in children, has an incredible ability to heal. With rest and time, **her memory should return to normal**. Some gaps may remain around the incident, and that's the brain's way of protecting itself from trauma.

Mrs. Roqaia:
That's a bit reassuring… but we also have to travel soon, and I'm not sure if that's safe for her now.

Dr. Ola:
I'm really glad you mentioned that. In cases of recent head injury, especially with a subarachnoid bleed, **travelling—particularly by air—is not recommended for a few weeks**. Changes in air pressure and long journeys can increase the risk of complications like increased pressure inside the skull or re-bleeding. It's safest to **postpone any travel until she's fully reviewed and cleared** by her medical team.

Mrs. Roqaia:
I didn't know that. Thank you for telling me. I just want to do what's safest for her.

Dr. Ola:
Of course, and you're doing exactly that by asking the right questions and looking after her so attentively. One last thing I'd like to talk about is **safety during bike riding**—to help prevent something like this in the future.

Here are some key **safety tips** for Sama as she recovers and for any future riding:

- Always wear a properly fitting **certified helmet**.
- Use a **bike that fits the child's size** – feet should touch the ground when seated.
- Ensure **handlebars and brakes** are easily reachable.
- Wear additional **protective gear**: knee pads, elbow pads, wrist guards, gloves.
- Ride only in **safe, traffic-free areas** (e.g., parks or bike paths).
- Wear **bright or reflective clothing**, especially in low light
- Always **supervise young children** while riding.
- Avoid loose clothing or shoelaces that can get caught in the bike.
- Use **closed-toe shoes** with a good grip.
- Teach them basic safety rules:
    - Stop at roads and driveways
    - Look **left-right-left** before crossing
    - No riding in rain or poor visibility
    - Avoid distractions: **no headphones or screens** while riding.

- Check the bike regularly:
    - Working brakes
    - Properly inflated tires
    - Secure seat and handlebars

Do **not resume biking until medically cleared** after a head injury.

Encourage helmet use as a **routine habit** – parents should wear one too.

Mrs. Roqaia:
Thank you so much, Dr. Ola. That makes me feel much better. I was really overwhelmed, but you explained everything so clearly.

Dr. Ola:
You're very welcome, Mrs. Roqaia. You're doing a wonderful job looking after Sama. We'll be here every step of the way to support her recovery. If you notice anything new—like worsening headaches, vomiting, increased drowsiness, or confusion—please seek medical attention right away. Otherwise, with rest and care, she should continue to improve steadily.

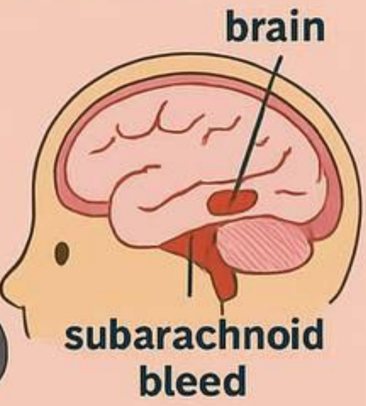
Pass/Fail Criteria
Subarachnoid haemorrhnage
(After Bicycle Fall)

Pass

- Shows empathy and reassures mother tacknowledges her worry about memory loss)
- Explains what happened in simple terms: fall ← subarachnoid bleed + concussion
- Clarifies that thee bleeds are offen **small and self-limiting**; body usually **reabsorbs** he blool
- Explains memory loss after concussion is common and usually temporary
- Mentions that the brain heals **well** in children, and memory often returns
- Explains that some small gaps may remaln around incident but overall recovery is ***expected***
- Advises on air travel safety: not recommended soon after bleed, postpone until reviewed
- Gives safety advice for future: helmets, protective gear, safe riding areas
- Mentions possible complications to watch for (heacache, seizures, weakness)
- **Provides balanced prognosis:** most children recover well

Fail

- Does not show empathy or ignores mother's anxiety
- Uses only **medical jargon** without explanation
- Fails to explain what a subarachnold ha**emorrhage** is
- Does not address memory loss or gives false reassurance ('she'll definitely be fine')
- Overly pessimistic outlook ('she may never recover')
- Omits discussion of air travel safety or gives untafe advice ('she can travel tomorrow)
- Ignores safety advice for future cycling
- Doesn't mention prognosis or complications
- Gives vague or confusing answers, no structure



Glycopyrrolate

Role: **Paediatric registrar**

Background: **Hassan is a 4 yrs. old child with global developmental delay (CP). Mother found him having a lot of drooling and skin break over his shin from salivation. He is on lamotrigine, omeprazole and Movicol. You want to start him on glycopyrrolate.**

Task: **Talk to the mother who wants to know about Glycopyrrolate, benefits, drawbacks, other alternatives, interactions with other antiepileptic medicines.**

Mother:
why does my child have hypersalivation?

Doctor:
Hypersalivation, or excessive drooling, is common in children with cerebral palsy due to difficulties in controlling the muscles around the mouth and throat. this can lead to an inability to swallow saliva effectively, causing it to accumulate and spill out of the mouth.

Mother:
What is Glycopyrrolate? and How does glycopyrrolate work?

Doctor:
Glycopyrrolate is a medication that works by blocking the action of acetylcholine, a chemical that stimulates the glands. This will reduce the production of saliva. And decrease drooling.

Mother:
Are there any side effects of glycopyrrolate?

Doctor:
Yes, glycopyrrolate can have side effects. But we are weighing benefit and risk. Common ones include dry mouth, constipation, difficulty wee, in some cases, it not in all that, especially if used at higher doses and we will monitor any of that.

Mother:
Is it ethical to start my child on glycopyrrolate?

Doctor:
Yes, it is ethical to use glycopyrrolate, provided it is done with your informed consent and under careful medical supervision. The goal is to improve your child's quality of life by managing the drooling which can cause a lot of problems as chocking, discomfort and social embarrassment.

Mother:
How often would my child need to take glycopyrrolate and want form?

Doctor:
Glycopyrrolate is usually given 2 to 3 times a day. The exact dosage and frequency would be tailored to your child's needs and response to the medication.

Mother:
Is there an interaction with the antiepileptic medications like lamotrigine?

Doctor:
Generally, glycopyrrolate does not have significant interactions with lamotrigine or other antiepileptic medications. However, monitoring is essential to ensure there are no adverse effects or changes in seizure control especially that he has received other medication which must be revised before starting it.

Mother:
What are the alternatives if glycopyrrolate doesn't work or has too many side effects?

Doctor:
Alternatives include:

1. Botulinum Toxin Injections: These are effective and have fewer systemic side effects but need to be repeated every few months.
2. Medications: Such as scopolamine patches.
3. Behavioural Interventions: Continuous efforts in speech and occupational therapy which help to make his muscle strong, and we can use it with medication as well.
4. Surgical Options: As a last resort for severe cases.
5. but still using this medication is better as starting way and we can use the other alternative in case it's not working well.

Communication

Important neonatology topics

DR. Ghada Refaat

MRSA

- Background information: Adam was admitted to the hospital for a surgical procedure. At admission, a routine MRSA (Methicillin-Resistant *Staphylococcus aureus*) screening was performed and returned negative. However, following the surgery, a repeat screening came back positive, indicating that the baby has now developed skin colonization with MRSA. Adam has therefore been placed in isolation as a precaution to prevent the spread of the bacteria to others. Adam's mother, upon discovering the isolation, was upset and demanded an explanation.
- Task: explain to Mrs Laila mother of Adam why isolation is required, what MRSA colonization means, the plan for treatment, possible outcomes and possible complications.

Dr. Hani: Good afternoon, Mrs. Laila. I understand you're very concerned about Adam being moved to an isolation room. I'd like to take a few minutes to explain what's happening and answer all your questions.

Mrs. Laila: Of course I'm upset! My baby was fine when he came in, and now you've put him in isolation. What's going on?

Dr. Hani: I completely understand how distressing this must be. I want to reassure you that Adam is stable and doing well after his operation. The reason for the isolation is because a recent routine test showed that he is now colonised with certain microbe called MRSA—Methicillin-Resistant *Staphylococcus aureus*. That means the microbe or bacteria is living on his skin without making him ill. It's not the same as having an infection, and it doesn't mean he's unwell.

Mrs. Laila: But how did he even get this? He was negative before the operation!

Dr. Hani: That's a very reasonable question. MRSA can be picked up from the hospital environment, from healthcare staff, equipment, or even from visitors. It's often difficult to trace the exact source, especially since MRSA can live on the skin without causing symptoms. Unfortunately, it can spread easily, which is why we do repeated screening and take precautions like isolation when someone tests positive.

Mrs. Laila: So what does this mean for Adam? Is he going to be okay?

Dr. Hani: Yes**, most babies who are colonised with MRSA remain completely healthy,** like Adam is now. To reduce the risk of the MRSA causing any infection, we've started

decolonisation treatment. This usually involves using special wash Chlorhexidine and an antiseptic nasal ointment known as Mupirocin. This treatment will last for 5 days. We will continue to monitor him closely.

Mrs. Laila: I think he got infected from the nurses I've seen them dealing with him without gloves. They are careless I'm sure they are the source of this infection to my child.

Dr. Hani: I hear your concern, Mrs. Laila, and I'm really sorry this has caused you so much worry. It's completely understandable that you'd be upset seeing something like that.

Let me reassure you—we take infection prevention very seriously, and there are strict hygiene protocols in place for all staff. But gloves aren't always required for every interaction. For example, if the nurse is simply comforting Adam or doing something that doesn't involve body fluids or invasive procedures, hand hygiene alone—like proper hand washing or using alcohol gel—is usually considered safe and effective, according to NHS and NICE guidelines.

Still, if you've seen something that made you uncomfortable, I genuinely appreciate you bringing it up. I can raise this with our infection control team to ensure everyone is following the highest standards of care and for sure we would do our investigations to be sure if this happened.

Mrs. Laila: but I want to complain.

Dr. Hani: I completely respect that, Mrs. Laila. You're absolutely entitled to raise a formal complaint, and I want to support you in doing that properly. Your concerns are important, and we want to make sure they're heard and investigated.

You can submit a complaint through our hospital's **Patient Advice and Liaison Service (PALS)**. They're here specifically to help families like yours with any concerns or complaints. I can either contact them for you now or give you their details if you'd prefer to speak with them directly.

Mrs. Laila: so, can this infection turn into something more serious?

Dr. Hani: In rare cases, MRSA colonisation can lead to infection, particularly if a child has surgical wounds or medical devices. That's why we're being cautious. If any signs of infection do appear—like redness, swelling, fever—we'll treat it promptly with antibiotics that are effective against MRSA.

Mrs. Laila: Does it mean you will not start antibiotic now?

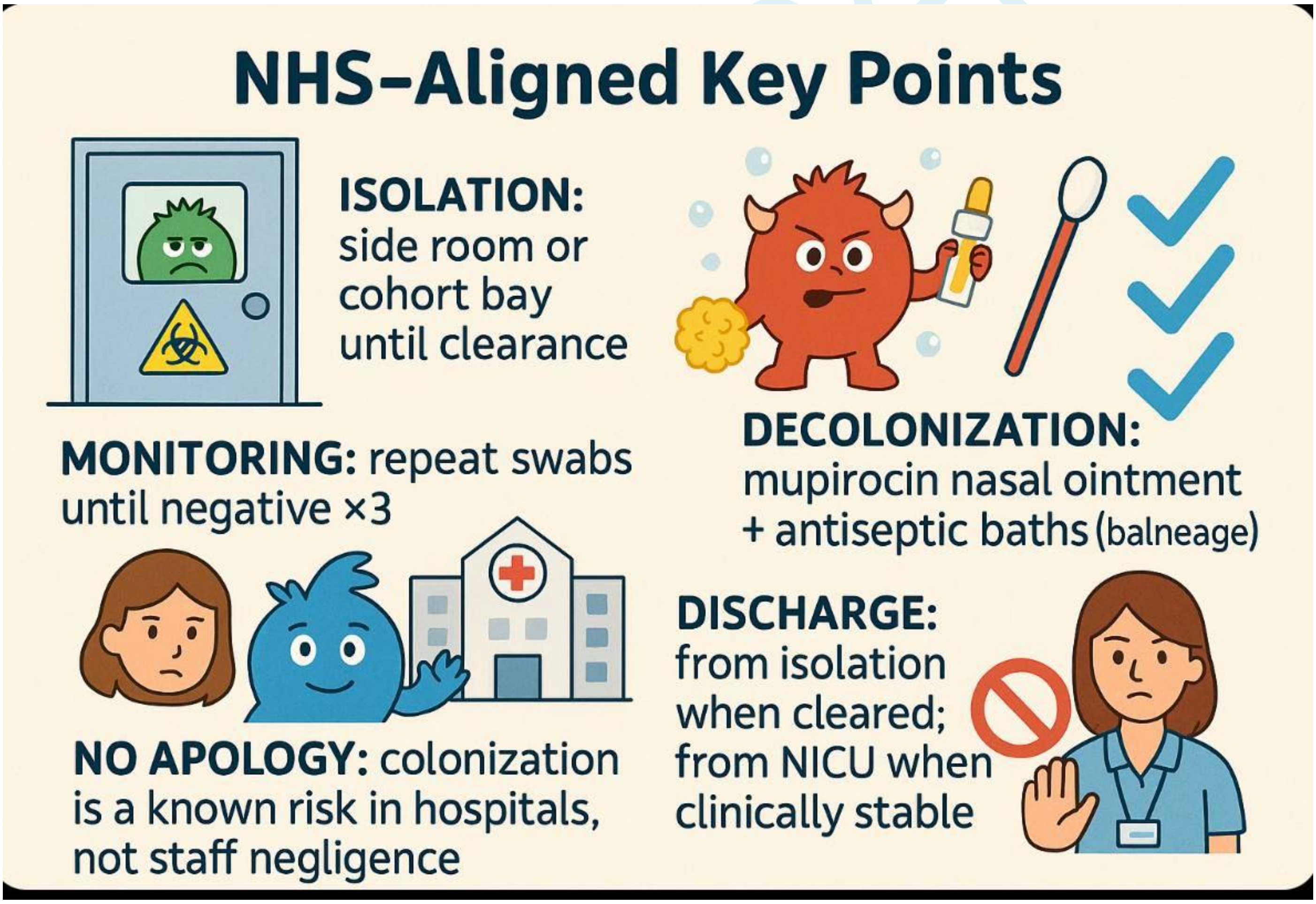
Dr. Hani: At the moment **no need for antibiotic** as this colonization is just on the skin and Adam is doing well.

Mrs. Laila: How long will he have to stay in isolation?

Dr. Hani: As far as he still requires being in the hospital according to the surgical team, he'll stay in **isolation until we complete the decolonisation course and do follow-up swabs to confirm he's free .** This helps protect other vulnerable patients. We'll keep you updated every step of the way. But at any time if the surgical team decided to discharge him, we could discharge him safely.

Mrs. Laila: I just want him safe.

Dr. Hani: And so do we. We're here to support both of you. Please don't hesitate to ask if anything worries you. You're welcome to stay with Adam, and we'll give you guidance on hygiene to keep both him and others safe.


NHS-Aligned Key Points
ISOLATION: side room or cohort bay until clearance
DECOLONIZATION: mupirocin nasal ointment + antiseptic baths (balneage)
MONITORING: repeat swabs until negative ×3
DISCHARGE: from isolation when cleared; from NICU when clinically stable
NO APOLOGY: colonization is a known risk in hospitals, not staff negligence

Early Neonatal Discharge

You need to speak with the mother of a 36-week newborn who had previously been informed that her baby would be discharged from the NICU tomorrow. However, you now need to request an earlier discharge today. The mother is not fully prepared for the discharge today. The reason for the change is that you are expecting the admission of a critically ill preterm baby, and currently, there are no available NICU beds.

Good afternoon Mrs. Sara. First of all, congratulations again on your baby! He is doing really well — his condition is stable, and we are very happy with his progress. Originally, we had planned to discharge him tomorrow. However, after reviewing his condition today, we found he is completely ready to go home safely.

But he was expected to be discharged tomorrow why you want to discharge him today?

I completely understand that you weren't expecting this change today, and I sincerely apologize for any inconvenience it may cause you. Please be assured that this decision was made purely based on your baby's readiness and stability. Also In our hospital policy, if a baby is medically stable, we can proceed with an early discharge.

But I'm not ready today for the discharge, you were supposed to inform me earlier!

I know you might feel unprepared, and that's completely natural. Please don't worry — you are not alone. Before you leave, we will provide you with all the necessary contact information, including the Neonatal Outreach Team and emergency support lines. If you face any difficulties, you can call them anytime for guidance.

But I didn't prepare my home yet.

If you need help preparing your home, we can also involve a social worker to assist you. And remember, it's very normal to feel overwhelmed — but we are here for you every step of the way.

How can I deal with my baby after discharge?

"It's completely normal to feel a little unsure at first, Mrs. Sara. Please don't worry — we will teach you everything you need to know before you leave.

We will guide you on how to feed your baby, how to recognize if he's hungry or uncomfortable, how to change and care for him, and what signs to watch for if he ever needs medical attention.

You will also not be alone after you go home. You’ll have the support of the Neonatal Outreach Team, health visitors, lactation consultants, and a 24-hour telephone line you can call anytime for advice or help.

You will also have regular appointments to monitor your baby's growth and development, and if you have any questions at any time, you can reach out to us, and we are here to support you every step of the way.

RH incompatibility

Setting: Neonatal Unit, early morning shift

Role: Dr Amr ST4 doctor.

Background information: Amina, a nurse who has just begun her shift in the neonatal unit, encounters a newborn diagnosed with haemolytic jaundice due to Rh incompatibility. As preparations begin for an exchange transfusion, she inquiries about the condition and why this specific intervention is being performed for this baby, considering that other infants in the unit also have jaundice but are not receiving the same treatment.

Task: explain to Amina what Rh incompatibility is, what exchange transfusion entails, and answer all her concerns.

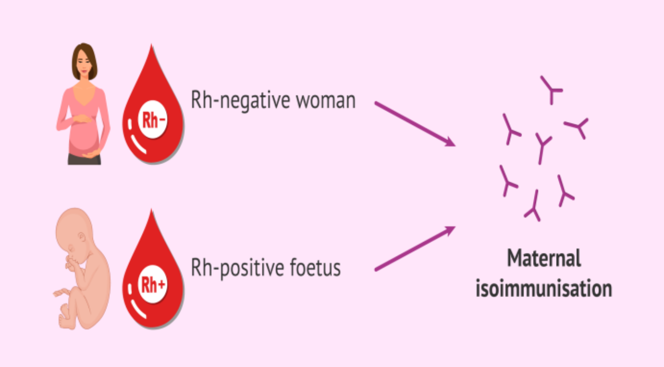
Dr. Amr:
Good morning, Amina. How did you find the work in our unit?

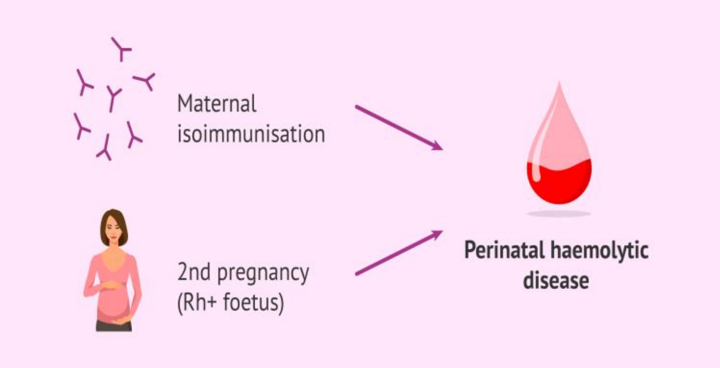
Ms. Amina (Nurse):
Good morning, Dr. Amr. I just started my shift and noticed that Baby Morad is scheduled for an exchange transfusion due to haemolytic jaundice. They told me it's caused by RH incompatibility, but could you please explain what exactly that means?

Dr. Amr:
Absolutely. Rh incompatibility happens when a Rh-negative mother carries an Rh-positive baby. During pregnancy or delivery, some of the baby's blood can mix with the mother's, causing her defense system to form certain proteins called antibodies against Rh-positive blood of the baby.

This also Could start early during pregnancy due to mixing between the baby and the mother blood. This usually doesn't affect the 1st child as the mother blood not yet sensitized.

But in future pregnancies, these antibodies can cross the placenta and attack the red blood cells of a Rh-positive baby, leading to destruction of red blood cells of the baby and leading to production of yellowish toxic material which is called bilirubin causing jaundice—what we're seeing in this case.





Ms. Amina:

I see. And what exactly is exchange transfusion? I’ve seen babies with jaundice before, but they usually just get phototherapy. Why is this baby receiving something more intensive?

Dr. Amr:

Great question. Exchange transfusion is a procedure where we gradually remove the baby’s blood and replace it with donor blood. It helps in three keyways:

1. It removes the baby's blood containing maternal antibodies.
2. It replaces them with healthy red blood cells to treat the anaemia caused by this destruction.
3. It significantly lowers the bilirubin level, which helps prevent brain damage from severe jaundice—something called kernicterus.

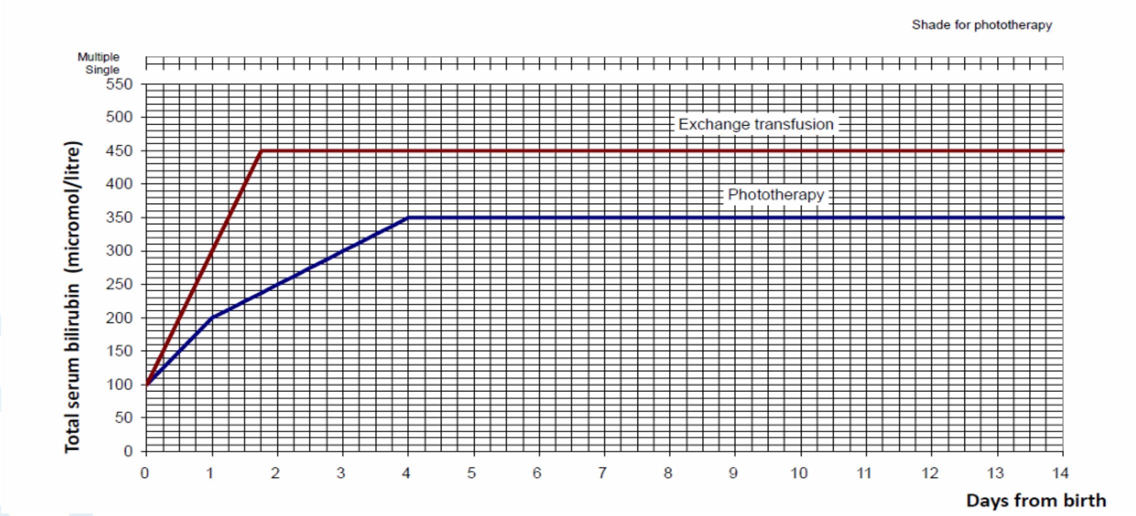
Ms. Amina:

That makes sense now. But why we choose exchange transfusion in this baby not phototherapy?

Dr. Amr:

Exactly. This is very good question this baby has Rh incompatibility. Their condition is more serious and progressing quickly, we usually plot the level of bilirubin on certain curve which show us the best way of management, this baby has very high level of bilirubin so to prevent the brain damage that could happen due to this high level we need to do exchange transfusion to rapidly decrease its level and stabilize the baby so its **rescue management**.

DRAW



Ms. Amina:

so, can you tell me how exchange transfusion is done and as a nurse how can I help you in that?

Dr. Amr:

sure we usually Insert a **double-lumen umbilical venous catheter** (UVC) or use **separate arterial and venous lines**. We use **type O Rh-negative blood**. It should be **cross matched with both mother and baby.**

We usually exchange about 2x the baby’s blood volume. Remove 5–10 mL of the baby's blood at a time. Slowly infuse an equal volume of donor blood after each withdrawal. Repeat until the full volume is exchanged. Process takes about 1–2 hours.

Continuous monitoring of: Heart rate, Respiratory rate, Oxygen saturation, Blood pressure, Glucose levels, Calcium (hypocalcaemia risk)

Ms. Amina:
How to prevent the occurrence of RH incompatibility?

Dr. Amr:
Firstly, early surveillance and recognition of the mother who has tendency of developing this to have early antenatal care by doing this antibody titre during pregnancy. And they give the mother some thing called **anti D** that help to decrease the sensitization of the mother.

Ms. Amina:
But if the mother already sensitized would we give her anti D?

Dr. Amr:
Thanks for this question Amina, its very important to give the mother anti D every time she got pregnant even if she aborted and if she is already sensitized as this will help to prevent further formation of antibodies because high levels of antibodies can cause sever haemolysis for the baby intrauterine and can complicate with something called **Hydrops Fetalis** or even **Stillbirth.**

Ms. Amina:
What is the side effects that could happen from this exchange transfusion I think it’s a risky procedure?

Dr. Amr:
Like any procedure it has its side effects like Hypoglycaemia, hyperglycaemia, Hypocalcaemia, infection, electrolyte imbalance, blood clots, bruising or bleeding but because we are doing exchange transfusion as a rescue management it out weights any side effects that could happen. Any we regularly educate our team on the best way to do it and how to avoid this side effects and how to manage if anything happened.

Ms. Amina:
What is the outcome of this procedure?

Dr. Amr:
The outcome usually **depends on the severity of the condition** and promptness of the management; time intervention is crucial most babies recover well if timely intervention was done.

Ms. Amina:
Thanks for the clarification, Dr. Amr. That really helps me understand the urgency and the plan of care.

Further reading: https://www.nhs.uk/conditions/jaundice-newborn/

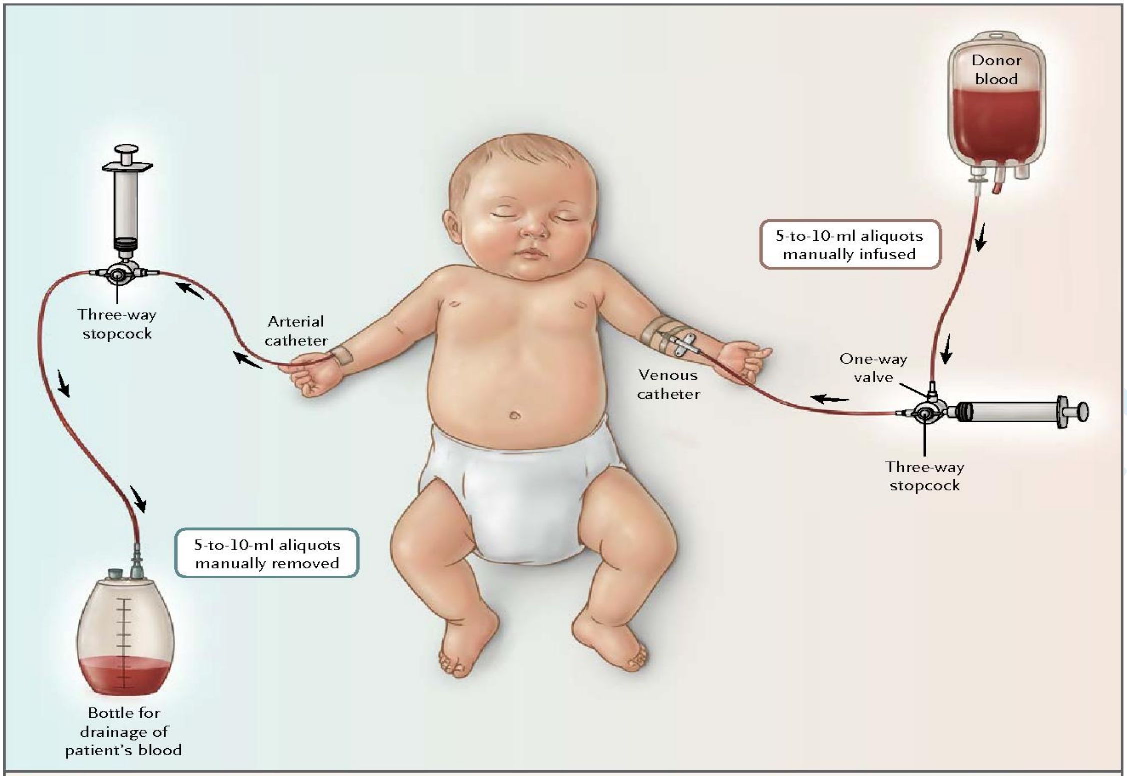
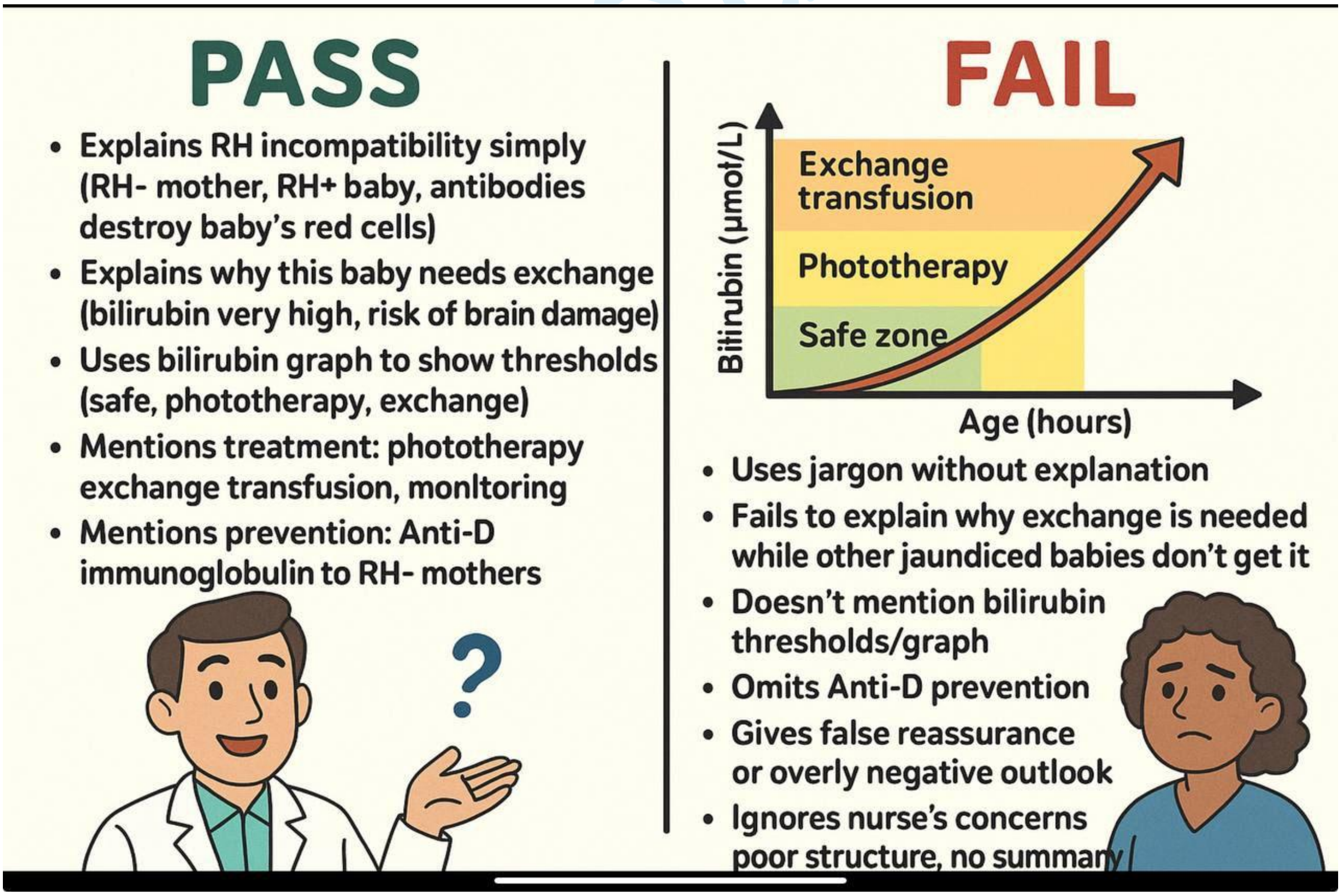

Donor blood
5-to-10-ml aliquots manually infused
Three-way stopcock
Arterial catheter
Venous catheter
One-way valve
Three-way stopcock
5-to-10-ml aliquots manually removed
Bottle for drainage of patient's blood

Figure 3. Exchange Transfusion in an Infant.

To avoid clinically significant hemodynamic shifts and metabolic abnormalities, small (5 to 10 ml) aliquots of donor blood are manually infused into the patient's venous circulation while equal aliquots of the patient's blood are manually withdrawn through an arterial catheter.


Bilirubin (µmol/L)
Exchange transfusion
Phototherapy
Safe zone
Age (hours)

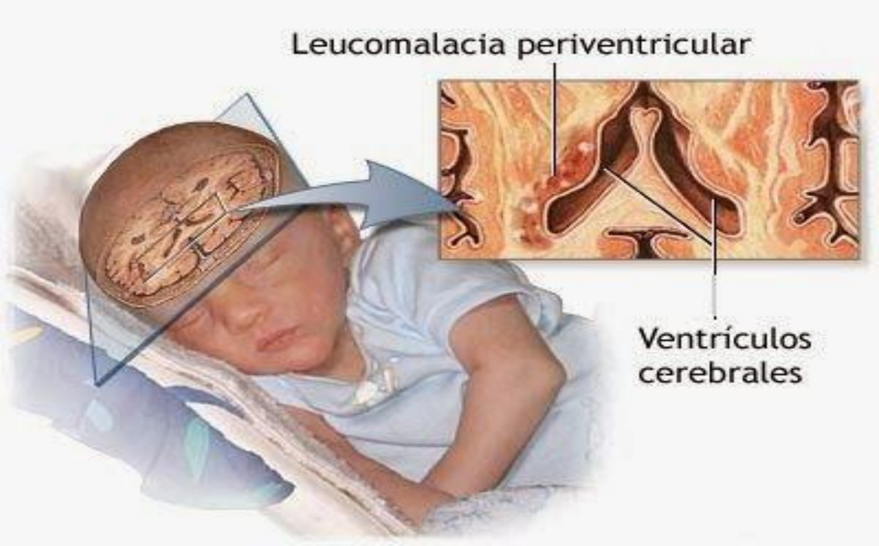
PASS

- Explains RH incompatibility simply (RH- mother, RH+ baby, antibodies destroy baby's red cells)
- Explains why this baby needs exchange (bilirubin very high, risk of brain damage)
- Uses bilirubin graph to show thresholds (safe, phototherapy, exchange)
- Mentions treatment: phototherapy exchange transfusion, monitoring
- Mentions prevention: Anti-D immunoglobulin to RH- mothers

FAIL

- Uses jargon without explanation
- Fails to explain why exchange is needed while other jaundiced babies don't get it
- Doesn't mention bilirubin thresholds/graph
- Omits Anti-D prevention
- Gives false reassurance or overly negative outlook
- Ignores nurse's concerns poor structure, no summary

Periventricular leukomalacia



- **Setting:** side room in neonatal unit
- **Talking to:** Mrs Salma mother of Ali
- **Background information:** A premature baby was noted to have Grade 2 intraventricular haemorrhage (IVH) and was recovered. A cranial ultrasound performed at discharge was reported to show findings consistent with periventricular leukomalacia (PVL).
- **Task:** Explain to the mother the condition and answer all her concerns.

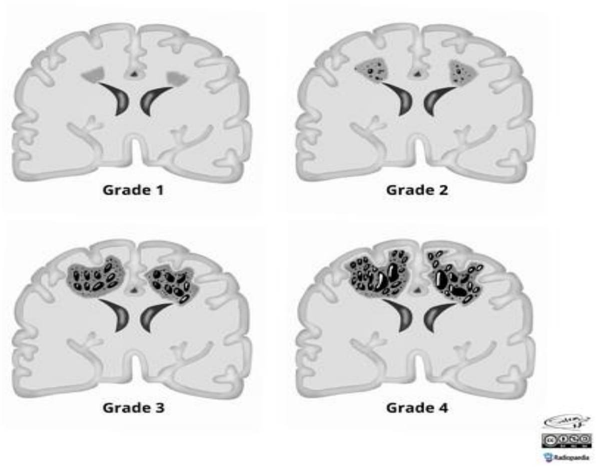
Good morning, Mrs Salma I'm here today to talk with you about your baby's condition. Could you tell me what do you know so far about him?

Yeah, dr I think he is doing well and he's about to be discharged and they told me they did scan for him but I don't know the results yet.

That's very good news, I'm really happy that your baby is doing well now, and I want to talk with you about the results of your baby's latest brain scan.

As you know, earlier in their stay, your baby had a small bleed in the brain. I'm pleased to say they recovered well at that time. However, sometimes even a small bleed can cause changes in the nearby brain tissue as it heals. The scan we did before going home has shown some signs of a condition called **periventricular leukomalacia**, or PVL. **Have you ever heard about this?** DRAW

Grades of periventricular leukomalacia



Let me explain to you, Periventricular means the areas around the fluid sacs in the brain here. Leuco means white matter that help send signals through the brain and body. Malacia means softening of this white matter. it is a known complication that can happen after bleeding in the brain, especially in prematures.

What is the reason of that he was ok?

I'm really sorry about this news I know it could be very distressing for you. PVL is more common in babies who are born very early (premature), but it can also happen in babies who have had infections or bleeding in the brain or problems around the time of birth.

What is the symptoms of that?

Early the baby could have no symptoms, and the symptoms could start later with time. However, this condition is not progressive nor reversible. That's why we keep following up the baby after discharge even if he has no symptoms at discharge.

Is it something serious? What is the fate of my child?

I know as a mother how desperately you need to know that now but **at this early stage, we cannot predict exactly what will happen. Its highly variable** and it **depends on**:

- **Which areas** of the brain's white matter are affected
- **How extensive** the damage is
- **How the baby's brain develops and adapts** over time

Because of this, **the outcome is very variable**:

- Some babies may have **no or very mild difficulties**.
- Others may develop **movement problems**, **learning difficulties**, or **vision issues** later on.

Will you give him any medications to manage this condition?

I'm sorry to tell you, at the moment, there **is no specific medication** that can reverse or cure periventricular leukomalacia (PVL). Treatment is mainly focused on careful monitoring and supporting your baby's development through therapies if needed. And managing any complication. You will not be alone huge team will be with you (explain roles) neurologist, children dr, developmental team, physiotherapist, community dr, premature outreach team, occupational therapy

Is it treatable condition ?

It’s not a condition that can be cured or reversed once it has happened. **The injury to the brain tissue is permanent**. However, the brain is still developing and has a **remarkable ability to adapt**, especially in young babies. While we cannot treat PVL itself directly, we can manage the effects it might cause. With **early intervention** we can help your baby develop their abilities as much as possible and improve their quality of life.

Our goal is to identify any difficulties early and provide the right support to give your baby the best possible outcome.

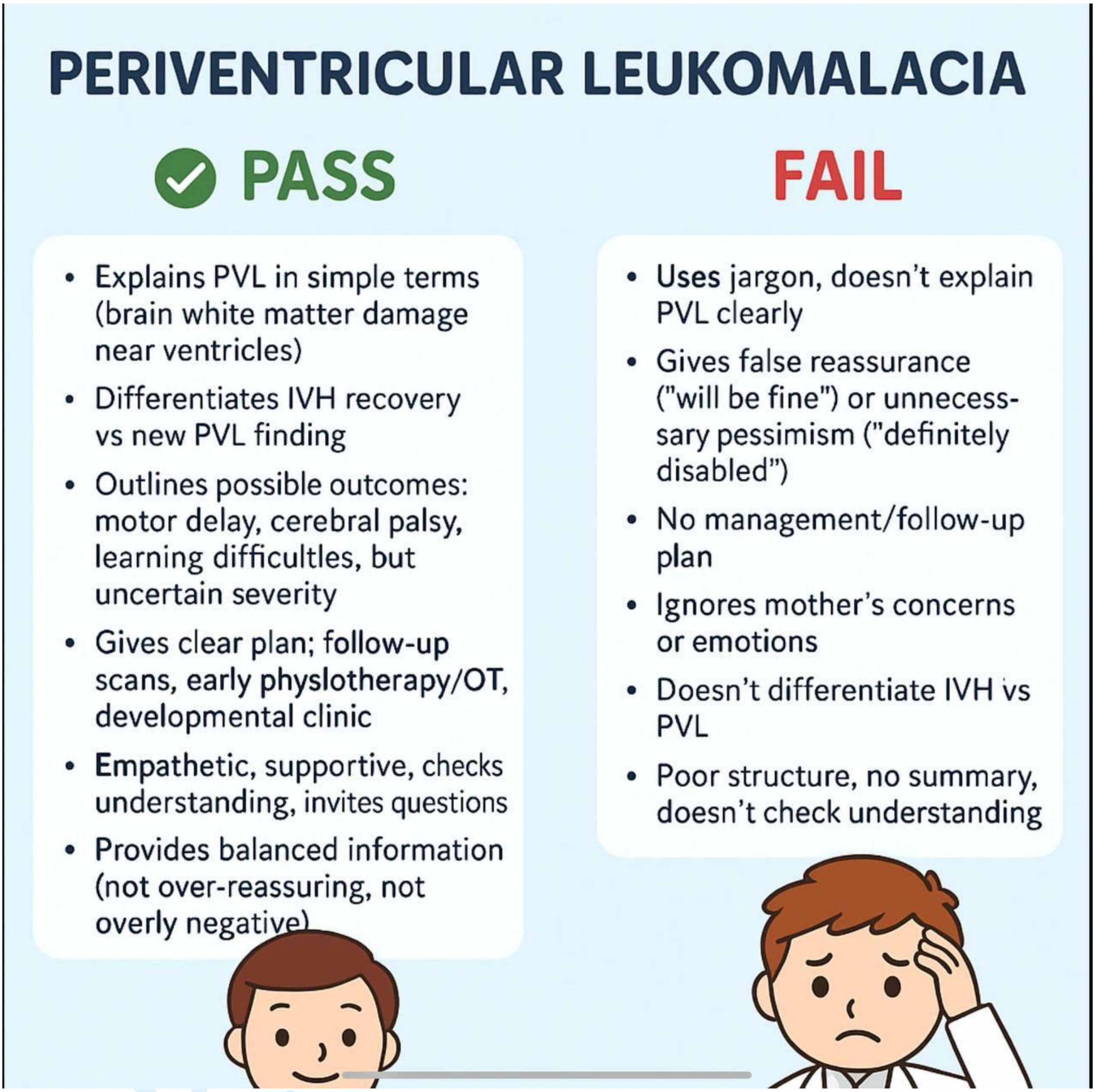
What Can You Do to help my child?

- Follow up with the doctor regularly.
- Start therapy early (physiotherapy, speech, occupational).
- Play and talk with your child often to help their development.
- Feed well and ensure good nutrition.
- Take care of yourself—you’re important too.

Watch for These Red Flags and please inform us if your child:

- Is slow to reach milestones (not sitting, walking, etc.).
- Has stiff or floppy muscles.
- Doesn’t see or follow objects well.
- Has trouble feeding or choking often.
- Shows jerky movements or possible seizures.
- Has unusual movements or posture.

Further reading: https://www.gosh.nhs.uk/conditions-and-treatments/conditions-we-treat/periventricular-leukomalacia/



PERIVENTRICULAR LEUKOMALACIA

✓ PASS

- Explains PVL in simple terms (brain white matter damage near ventricles)
- Differentiates IVH recovery vs new PVL finding
- Outlines possible outcomes: motor delay, cerebral palsy, learning difficulties, but uncertain severity
- Gives clear plan; follow-up scans, early physiotherapy/OT, developmental clinic
- Empathetic, supportive, checks understanding, invites questions
- Provides balanced information (not over-reassuring, not overly negative)

FAIL

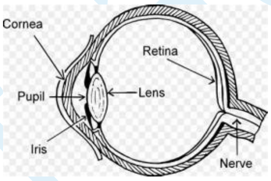
- Uses jargon, doesn't explain PVL clearly
- Gives false reassurance ("will be fine") or unnecessary pessimism ("definitely disabled")
- No management/follow-up plan
- Ignores mother's concerns or emotions
- Doesn't differentiate IVH vs PVL
- Poor structure, no summary, doesn't check understanding

Retinopathy of prematurity

> **"Discuss with the mother of a premature infant that her baby has been diagnosed with Stage 2, Zone 2 Retinopathy of Prematurity (ROP), and address all her concerns regarding the condition."**

I'm sorry to tell you that when we checked your baby's eyes — which we do routinely for premature babies in the neonatal care unit — we found that your baby has a condition called *Retinopathy of Prematurity*, or ROP for short. Have you ever heard of this before?"

That's okay — let me explain it simply to you. DRAW



The eye is a bit like a camera. Inside the eye, there is a thin layer called the *retina* — you can think of it like the film in an old camera. The retina collects the pictures we see and sends them to the brain through nerves, allowing us to see properly.

In babies who are born very early their organs, including the eyes, are not fully developed — the retina sometimes doesn't finish developing in the normal way. Instead, some abnormal blood vessels can start to grow. These vessels can sometimes cause problems, and if not managed carefully, they might affect the baby's vision. This condition is what we call *Retinopathy of Prematurity* (ROP).

What does it mean? Does it sever condition?

ROP is classified by the location in the eye (we call these 'zones') and the severity (we call these 'stages'). In your baby's case, he has been diagnosed with ROP Stage 2 (meaning moderate severity) in Zone 2 (meaning the middle part of the retina).

The good news is that at this stage, we will monitor your baby's eyes closely. Many cases like this can improve on their own without needing any treatment. But if we see signs that it is getting worse, we may need to start treatment to protect his vision. DRAW ZONES

What is the management of this condition?

The management depends on the severity of ROP and its personalised tailored

- In many cases like your baby's, the ROP **can improve on its own** without any treatment.
- However, if it **progresses to a more severe stage** (Stage 3 or higher), it can threaten vision, and treatment will be necessary. **If treatment is needed**, options include:
  - **Laser therapy**: to stop the abnormal vessels.

DR Ghada Refat

- **Injection of medication into the eye**: to block the abnormal blood vessel growth.
- **Surgery**: in severe cases.

What is the next step?

At this stage, your baby will be **followed up with paediatric ophthalmologist** — a doctor who specializes in eye care for babies and children.
Your baby will undergo **regular eye examinations** to monitor the ROP closely.

It is very important that you **attend all scheduled appointments** with the ophthalmologist. Following their recommendations carefully gives your baby the best chance of a good outcome."

What is the outlook (prognosis)?

- **Early diagnosis** and **timely management** are critical for the best results.
- In most cases, **ROP improves on its own** without needing any treatment.
- If intervention is needed, starting treatment early greatly increases the chances of protecting your baby's vision.
- We usually aim to start treatment, if necessary, **within 24–72 hours** of the decision.

What is the Possible complications?

I understand this is difficult to hear, but I want to be honest with you. If ROP is **not treated properly** or if it becomes **severe** and **does not respond to treatment**, it can cause:

- Impairment of vision, Complications with near vision, Complications with far vision,
- And in rare cases, very poor vision or even vision loss.
  This is why **timely treatment** and **strict follow-up** are so important.

Does ROP need long-term follow-up?

Yes. Even if ROP improves — whether it improves naturally or with treatment — your baby will still need **long-term follow-up with an eye doctor (ophthalmologist)**.

This is because some eye problems can appear later as the child grows, Follow-up usually continues **at least until your baby is 2 years old**, and sometimes even longer.

What do you mean by early intervention?

Early intervention means **starting the necessary treatment within 72 hours** (3 days) after the ophthalmologist decides it is needed.

Is it related to anything I did wrong?

I want you to know clearly: **It is not related to anything you did.**
Prematurity can happen to anyone, and not all premature babies develop ROP.

ROP development depends on many medical factors that are unique to each baby — it is not caused by anything a mother did or did not do.

What are the risk factors (RF) for ROP?

"Risk factors that make ROP more likely include:

- Babies born at a very early age (low gestational age),
- Babies with very low birth weight,
- Babies who had complications in the neonatal period (such as infections, lung problems, or needing oxygen therapy for a long time).
  But again, even if a baby has risk factors, it doesn't mean they will definitely have severe ROP — it varies from child to child."

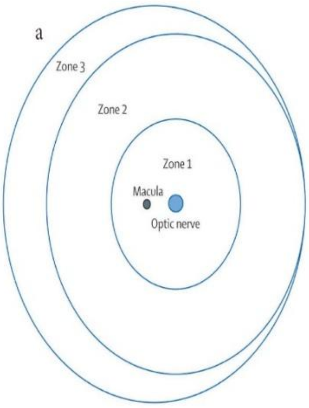
Further reading: https://www.wsh.nhs.uk/CMS-Documents/Patient-leaflets/EyeTreatmentCentre/6370-1-Retinopathy-of-Prematurity-ROP.pdf

If medical student

Premature Baby (<32 weeks or <1500g)
↓
Start Screening at 4-6 weeks after birth
↓
Eye Examination by Ophthalmologist
↓
Is there ROP?

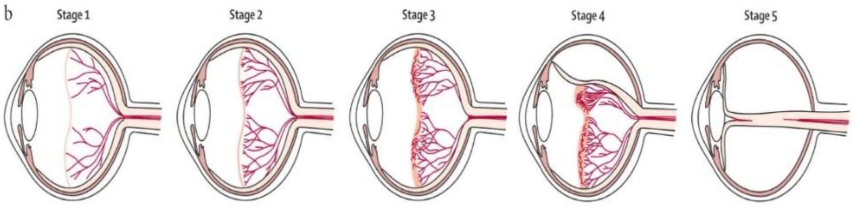
➔ No ROP
➔ Continue regular screening until retina is fully vascularized

➔ ROP present
↓
Check Zone and Stage: DRAW



Zones:
- Zone I (Center, highest risk)
- Zone II (Middle)
- Zone III (Peripheral, low risk)

Stages:
- Stage 1: Mild demarcation line
- Stage 2: Ridge formation
- Stage 3: Abnormal new vessels
- Stage 4: Partial retinal detachment
- Stage 5: Total retinal detachment



Is there Plus Disease?

➔ No Plus Disease
    ➔ Monitor closely

➔ Plus Disease present
    ➔ Needs urgent treatment (Laser or Anti-VEGF)

Threshold for Treatment:
- Stage 3 in Zone I or II + Plus disease
- Large area of involvement (>5 contiguous clock hours or >8 cumulative)

↓
Start Treatment (Laser / Anti-VEGF / Surgery if needed)
↓
Long-term Follow-up (at least until 2 years old)

Neonatal Abstinence Syndrome

Scene: Neonatal Ward – Private Consultation Room
Role: Dr Sameh Paediatric registrar
Background: Following delivery of baby Omar was in the neonatal ward for routine observation. During the follow-up, he exhibited symptoms consistent with Neonatal Abstinence Syndrome (NAS). Initially, there was no documented history of maternal drug use, and the mother, Nadia, denied any substance intake during pregnancy.
However, after thorough clinical examination and assessment, a diagnosis of NAS was confirmed, and Omar was admitted to the NICU.
Task: you will talk to the mother to explain the diagnosis, explore possible causes, and outline the next steps in management.

Dr. Sameh:
Good afternoon, Mrs. Nadia congratulations for your baby Omar.

Mrs. Nadia:
Thank you dr.

Dr. Sameh:
Mrs Nadia I'm here now to discuss with you about Omar's condition, so can you tell me what do you know so far about him?

Mrs. Nadia:
I don't know dr they he was crying all the time and refused to take breast feeding the nurse tried to give him bottle and he wasn't suckling, he was doing some movements like shaking as well. I was so worried about him they told me he needs to be admitted, and I don't know any updates about him. Would you tell me please how he is doing right now?

Dr. Sameh:
yes, you are right. We've noticed that Omar is having difficulty feeding, he's very irritable, and he has tremors and frequent sneezing. These signs are consistent with a condition called ***Neonatal Abstinence Syndrome*, or NAS**. It usually happens when a baby is exposed to certain substances during pregnancy and then goes through withdrawal after birth.

Mrs. Nadia:
But I didn't take anything during my pregnancy! I was very careful, doctor.

Dr. Sameh:
I understand, and I know this can be difficult to talk about. Our main concern right now is Omar's health and making sure we give him the right care. Sometimes, substances—whether prescribed, over-the-counter, or otherwise—can affect the baby. Even medications used to help with pain, anxiety, or sleep can have an impact.

Mrs. Nadia:
I… I didn't think it would matter. I was going through a really hard time.

Dr. Sameh:
I hear you, and I'm not here to judge—only to support you and your baby. It's very important that we know exactly what Omar was exposed to so we can treat him effectively and safely. Was there any medication or substance you were using during pregnancy that you didn't mention earlier?

Mrs. Nadia:
Yes... I was taking some pills that a friend gave me. She said they helped her relax. I didn't go to a doctor. I just... I couldn't sleep, and I was anxious all the time.

Dr. Sameh:
Thank you for telling me, Nadia. I know that wasn't easy to share, and I appreciate your honesty—it really helps Omar. Do you remember the name of the pills, or what they looked like?

Mrs. Nadia:
They were small white tablets. I only took them once or twice a week… but I didn't think it would hurt the baby.

Dr. Sameh:
That information is very helpful. The good news is that now we know more, we can better manage Omar's symptoms and make sure he gets the care he needs.

Mrs. Nadia:
Is he going to be, okay?

Dr. Sameh:
We'll continue to monitor him closely. Most babies with NAS recover well with the right treatment and support. He may need **medications to ease the withdrawal symptoms**, and we'll gradually wean him off as he stabilizes. We'll also involve a support team to help you as a mother—this includes **counselling and social services**—to provide medical care, emotional support, and any necessary social or psychological assistance. social support if you need it.

Mrs. Nadia:
Wait… you mentioned social services. Are they going to take my baby away?

Dr. Sameh:
I understand why you're worried, Nadia. But please know, the goal of involving **social services is not to separate you from your baby**. Their role is to support families, especially in situations where additional help is needed.

Mrs. Nadia:

But I made a mistake… will they think I'm not a good mother?

Dr. Sameh:
You’re here now, being honest, and showing concern for Omar—that *is* what a good mother does. Many mothers go through difficult times, and the important thing is that you're willing to work with us to make things better. **Social services can help connect you with resources like counseling, parenting support, or substance use programs if needed**—not to punish you, but to help you and your baby stay together safely.

Mrs. Nadia:
So, they’re not going to take him?

Dr. Sameh:
As long as we believe Omar is safe and that you’re committed to his care and following the treatment plan, **there’s no reason to assume separation is necessary**. We all want the same thing—for Omar to be healthy and for you to be supported as his mother.

Mrs. Nadia:
Okay… I’ll do whatever it takes. I just want to keep him with me.

Dr. Sameh:
That’s good to hear, Nadia. We’ll work together step by step. You're not alone in this.

Mrs. Nadia:
Thank you, doctor. I really didn’t mean to harm him...

Dr. Sameh:
I know, Nadia. What matters now is that we work together to give Omar the best start in life. You’re not alone in this—we’ll support you every step of the way.

Mrs. Nadia:
How long will he have to stay in the hospital?

Dr. Sameh:
It depends on how severe his symptoms are and how he responds to treatment. Some babies need just a few days, while others may stay for a couple of weeks. We’ll keep you updated every step of the way, and we’ll support your involvement in his care—feeding, comforting, and bonding with him as much as possible.

Mrs. Nadia:
Thank you, doctor. I feel more hopeful now.

Dr. Sameh:
You’re very welcome, Nadia. let me summarize to you what we discussed today about Omar’s condition.

Neonatal Abstinence Syndrome (NAS) – NHS Policy (Concise note for you)

Definition

- Withdrawal in newborns exposed to opioids or other drugs in utero.

Assessment:

- Use Modified Finnegan Score every 3–4 hours (important question in uk exam).
- Symptoms:
    - CNS: irritability, high-pitched cry, tremors, hypertonia, seizures
    - Autonomic: sweating, fever, yawning, sneezing
    - GI: poor feeding, vomiting, loose stools

Severity

- Score < 8: supportive care
- Score ≥ 8 (3 times): start medication
- Score ≥ 12: severe withdrawal

Management

1. Non-pharmacological (first line)

- Quiet, low-stimulus environment
- Swaddling / skin-to-skin care
- Frequent small feeds
- Breastfeeding if mother stable on opioid therapy
- Rooming-in with mother

2. Pharmacological

- First line: Oral Morphine (40–90 micrograms/kg every 4 hrs)
- Second line: Phenobarbital or Clonidine if uncontrolled

Weaning

- Reduce morphine 10–20% every 24–48 hrs once stable.

Monitoring

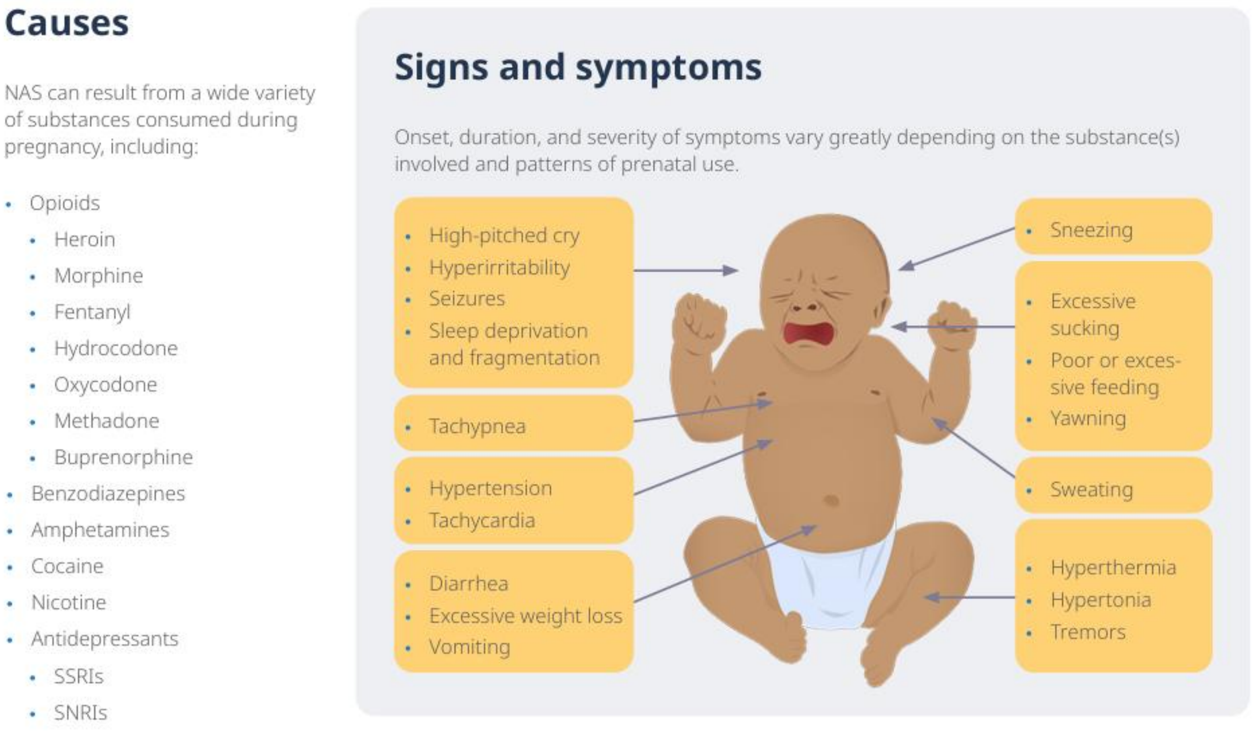
- Finnegan scores
- Feeding, weight, hydration
- Observe for seizures

Safeguarding

- Multidisciplinary review (neonatology, midwives, social services).

Discharge

- Stable scores, feeding well, weight stable, follow-up arranged.



Causes

NAS can result from a wide variety of substances consumed during pregnancy, including:

- Opioids
  - Heroin
  - Morphine
  - Fentanyl
  - Hydrocodone
  - Oxycodone
  - Methadone
  - Buprenorphine
- Benzodiazepines
- Amphetamines
- Cocaine
- Nicotine
- Antidepressants
  - SSRIs
  - SNRIs

Signs and symptoms

Onset, duration, and severity of symptoms vary greatly depending on the substance(s) involved and patterns of prenatal use.

- High-pitched cry
- Hyperirritability
- Seizures
- Sleep deprivation and fragmentation

- Tachypnea

- Hypertension
- Tachycardia

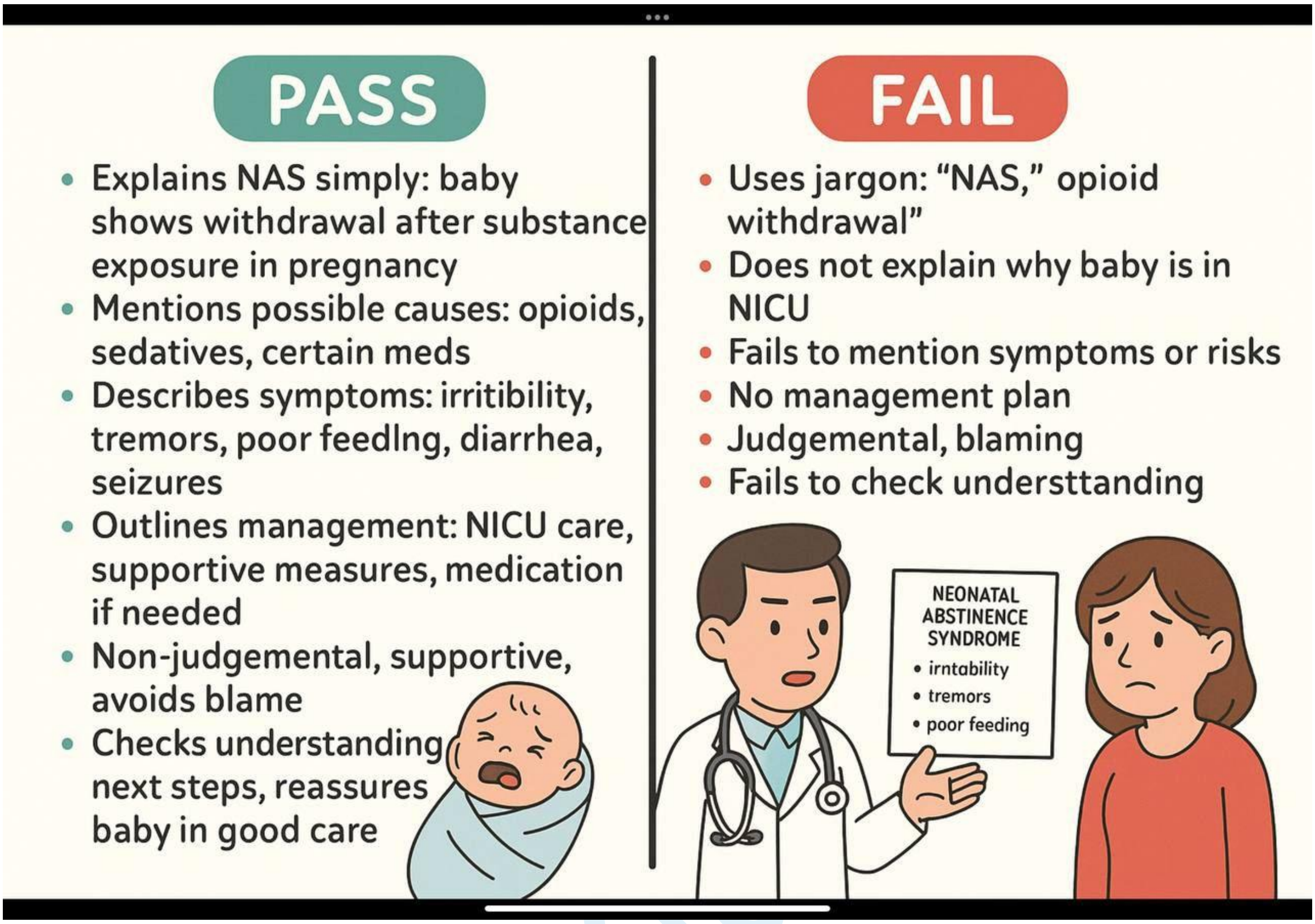
- Diarrhea
- Excessive weight loss
- Vomiting

- Sneezing

- Excessive sucking
- Poor or excessive feeding
- Yawning

- Sweating

- Hyperthermia
- Hypertonia
- Tremors



PASS

- Explains NAS simply: baby shows withdrawal after substance exposure in pregnancy
- Mentions possible causes: opioids, sedatives, certain meds
- Describes symptoms: irritibility, tremors, poor feedlng, diarrhea, seizures
- Outlines management: NICU care, supportive measures, medication if needed
- Non-judgemental, supportive, avoids blame
- Checks understanding next steps, reassures baby in good care

FAIL

- Uses jargon: “NAS,” opioid withdrawal”
- Does not explain why baby is in NICU
- Fails to mention symptoms or risks
- No management plan
- Judgemental, blaming
- Fails to check understtanding

NEONATAL ABSTINENCE SYNDROME
• irntability
• tremors
• poor feeding

DR. Ghad

PSYCHIATRY

Stress Headache

Background information: Hesham 10-year-old boy is brought by his father Mr Nagy due to recurrent headaches. The child is a known case of asthma and on regular treatment. His headaches are frequent during school days but not during weekends or holidays. The neurological exam is also unremarkable. The family was previously informed that the headaches may be related to stress.

Role: Dr Esraa ST4 Registrar.
Task: Address the father's concern regarding a serious underlying cause like a brain tumour (especially with a family history), explain the nature of tension-type headaches, and management plan worth answer all their concern.

Dr Esraa:
Good morning, Mr Nagy. I'm here today to talk with you about Hisham's condition, can you tell me what is his main complaint?

Mr Nagy:
Hisham is suffering 8mo now from having severe headache, mostly now he has it all the time sometimes it skips weekends.
I'm afraid he could have brain tumour as his grandfather who died with it, & it was only discovered when he did MRI.

Dr Esraa:
I'm sorry for your loss, I know how its hard to pass through this, we are all here to support you and Hisham.

I know how much it's difficult to see your child have same symptom like his passed grandpa but let me assure you, when we examined Hisham we found that he has a condition called **Stress headache**, have you heard about it before.

Mr Nagy:
No dr what is this?

Dr Esraa:
Stress headache means that tight band or pressure around the head caused by stress over his nerves due to stressing conditions like busy school days, exam days, also it may be due to physical problems like exposure to cold, hot weather, exhaustion, prolonged stressing, poor posture, skipping meals, or dehydration, certain types of food(like caffeine, cheese, chocolate), irregular sleep patterns. His & our body react to these stressors in the form of Headache. His asthma it self can be the leading cause.

Mr Nagy:
How his asthma can be a cause of headache?

Dr Esraa:

Children with uncontrolled asthma could have ***breathing difficulty & anxiety*** → which stimulate stress response and muscle tension.
also ***hypoxia or hyperventilation*** if the child is not controlled → can lead to changes in brain blood flow
sometimes ***medication side effects*** → like steroids can cause headache
having ***frequent cough*** specially at night cause sleep disruption → which worsens stress and headache risk
also children who have ***chronic illness*** → considered as psychological burden leading to tension headaches

Mr Nagy:
Yes, Dr. But I'm afraid he could have the same condition as his grandfather. They were reassuring him till he did an MRI he was diagnosed. So, can you reassure me & do MRI for him?

Dr Esraa:
I understand your worries Mr Nagy but from the detailed history taken from you and Hisham and his full examination, the fact that the headaches happen mostly on school days but not on weekends or holidays suggests these may be we are pretty sure that this is not related to brain tumour or any brain lesion at all it's mostly stress or tension headache.

So there is no indication to do MRI now but if we found any indication to do it we will do it immediately.

Mr Nagy:
But what make you sure he doesn't have brain tumour?

Dr Esraa:
He doesn't have any **alarming symptom of brain tumour**: Symptoms like nausea, Headache that wakes him up at night, Frequent vomiting, Blurred or double vision, Behavioural changes, Weakness or difficulty walking, Headaches that get progressively worse.

Mr Nagy:
yeah, he doesn't have any of these.

Dr Esraa:
That's very reassuring point, at any time if he experienced any of these symptoms don't hesitate to come back to us.

Mr Nagy:
ok dr but can he take pain relievers regularly to avoid this headache?

Dr Esraa:
I know Mr Nagy how desperately you need to see your child free of pain but actually taking this medications regularly unexpectedly can trigger the headache more in a condition called overuse headache, so it's not recommended at all.

Instead I advise him to have some **life style modifications** like: avoid conditions that may cause stress like cold & hot weather, eye strain, avoid fasting for long time, also he has to avoid chocolate, cheese & caffeine, avoid exhaustion and dehydration engage himself in Sports activity, Manage his sleep & if he has any sleep problem (too much sleep, or less sleep), Keep hydrated.
Also to be well compliant to his asthma medications to be well controlled. Is that clear?

Mr Nagy:
Yes

Dr Esraa:
Also, I'll refer him to **talk therapy** with specialized person who will teach him about the nature of his headache & how to deal with it.

Mr Nagy:
Ok Dr but If he's in pain & you told me don't give medication, so how to deal with this?

Dr Esraa:
During headache what we call sick days there is some **coping strategies** they would teach him to deal with it like relaxation techniques to close his eyes in dark room, breathing exercises also if he was fasting eating & drinking will improve the condition. Only if the pain is severe or disabling, you can give paracetamol.
It's also important to **keep diary** of the attacks to know exactly the trigger for his headache and try to avoid.
We can also refer your child to **cognitive behavioural therapy** may help your child how to manage stress by teaching him how to deal in stressful situations.

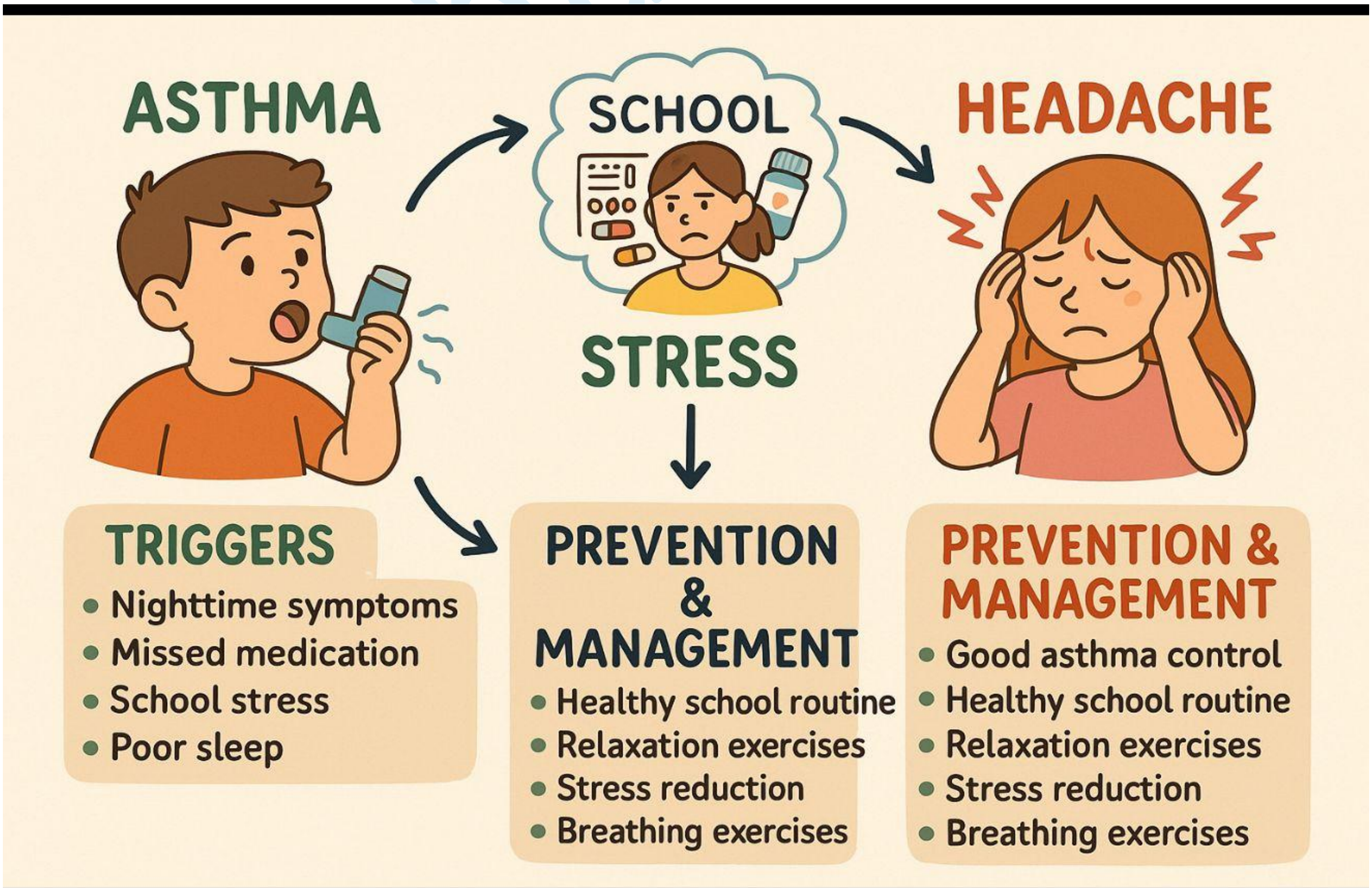
Mr Nagy:
Shall he grow out of it?

Dr Esraa:
The good news that most of children and teenagers grow out of which by avoiding the triggers and following healthy lifestyle, good managing of his asthma, having diary for the attacks and trying to avoid its triggers, also following the coping strategies and following with the team.

Mr Nagy:
Ok dr that was very informative thank you.

Important key points:

- **Nature of stress headaches**:
  - Feels like a tight band or pressure around the head.
  - Commonly triggered by school stress, exams, poor posture, skipping meals, dehydration, irregular sleep, or certain foods (caffeine, cheese, chocolate).
- **Link with asthma**:
  - Breathing difficulty and anxiety → stress response and muscle tension.
  - Hypoxia or hyperventilation → changes in brain blood flow.
  - Medication side effects (e.g., steroids) may contribute.
  - Night-time cough → sleep disruption, worsening headaches.
  - Chronic illness itself → psychological burden, increasing stress.
- **Not suggestive of brain tumour**:
  - No red flag symptoms such as progressive worsening, headaches waking from sleep, persistent vomiting, visual changes, weakness, or behavioural changes.
  - Headaches mainly during school days, less on weekends → supports stress-related cause.
- **Management**:
  - No need for routine MRI unless red flag symptoms develop.
  - Avoid regular painkillers (risk of overuse headache).
  - Focus on lifestyle modifications: hydration, regular meals, healthy sleep, avoid known food triggers, manage posture, avoid exhaustion.
  - Ensure good asthma control.
  - Encourage physical activity and relaxation techniques.
  - Keep a headache diary to identify triggers.
  - Referral to psychological support/CBT to manage stress and coping strategies.
  - Paracetamol only if severe or disabling pain.
- **Prognosis**:
  - Most children grow out of stress headaches with good trigger management, lifestyle adjustments, and asthma control.


ASTHMA
SCHOOL
HEADACHE
STRESS
TRIGGERS
• Nighttime symptoms
• Missed medication
• School stress
• Poor sleep
PREVENTION & MANAGEMENT
• Healthy school routine
• Relaxation exercises
• Stress reduction
• Breathing exercises
PREVENTION & MANAGEMENT
• Good asthma control
• Healthy school routine
• Relaxation exercises
• Stress reduction
• Breathing exercises

Dermatitis artefacta

Background information: Sara is a 15-year-old girl referred back from dermatology she has recurrent, unexplained skin lesions. The lesions are linear, well-demarcated, and mostly on accessible parts of her body. Multiple investigations, including infection screening, autoimmune markers, and allergy testing, have returned negative. The dermatologist diagnosed him with dermatitis artefacta

Role: Dr Ali ST4 Registrar.
Task: Explain the diagnosis to Sara, explore her understanding, and introduce a supportive management plan. She asked to meet you privately

Dr Ali:
Hi Sara, thank you for coming in today. I know you've been dealing with these skin changes for a while.

Sara:
yeah, Dr I have this skin lesions and I was referred to the skin Dr but he referred me back here I don't know why, he didn't even tell me what's my diagnosis?

Dr Ali:
So, Sara, after we examined your skin and been examined by the skin dr, we've looked into several possible causes for the skin lesions things like infections, allergies, and other medical skin conditions. All of those tests have come back normal, which is reassuring. But we also looked carefully at the pattern and location of the lesions, and they don't match what we usually see with those types of conditions.

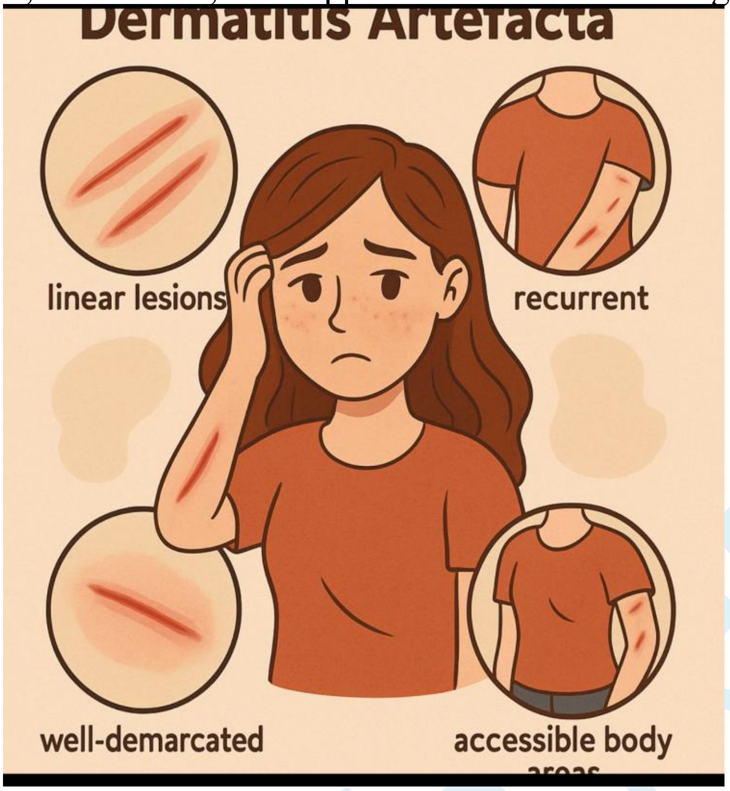
Sara:
Okay... So what does that mean then? What's causing it?

Dr Ali:
Well, based on what we see and the results we have, we believe this may be a condition called ***dermatitis artefacta.*** Dermatitis means inflammation in the skin or skin changes artefacta means these lesions happen when a person is doing it that whether purposely or un purposely under influence of stressors

Sara:
Wait, are you saying I did this to myself?

Dr Ali:
Sara, I'm not accusing you but this something could happen for any one in your age. A lot of teenagers experience some things like that. I want to reassure you—this isn't about fault or

blame. It’s a way of coping that can happen without us even realizing it. What matters most is that you feel safe, understood, and supported as we move through this together.



Sara:
Um… I feel you are accusing me and my parents on their way I don’t want them to know anything about that. Please?

Dr Ali:
Of coarse , Sara. I really respect your feelings and your privacy. What we talk about here is confidential. I won’t share anything with your mum or anyone else unless you say it’s okay—unless there’s a serious risk to your life.

Sara:
What’s the outcome of this condition, doctor? Is it curable?

Dr Ali:
That’s a really important question, Sara. The good news is that many young people with dermatitis artefacta do get better—It needs your patience and time because it needs long time for the therapies and sometimes even after healing you may expose to what is called setbacks as under stressors you could face it again. we need you just to be linked to the therapist and to comply to your appointments. With regular follow-up, good care, and support from people who understand, the skin can fully recover, and the episodes can stop. What really helps is not feeling judged and knowing you have a team who believes in you and is here to help you feel better inside and out.

Sara:
Are you sure it’s not skin disease?

I’m sorry to tell you it’s not a skin disease it’s a problem with emotions and the way how your body deal with stress and it’s considered a mental health problem. That’s why mental health dr and cognitive therapy also multi professional team will be involved in your management. We'll arrange for you to speak to someone who specializes in teenage mental health. You'll have regular visits with us to check on your skin and how you're feeling overall

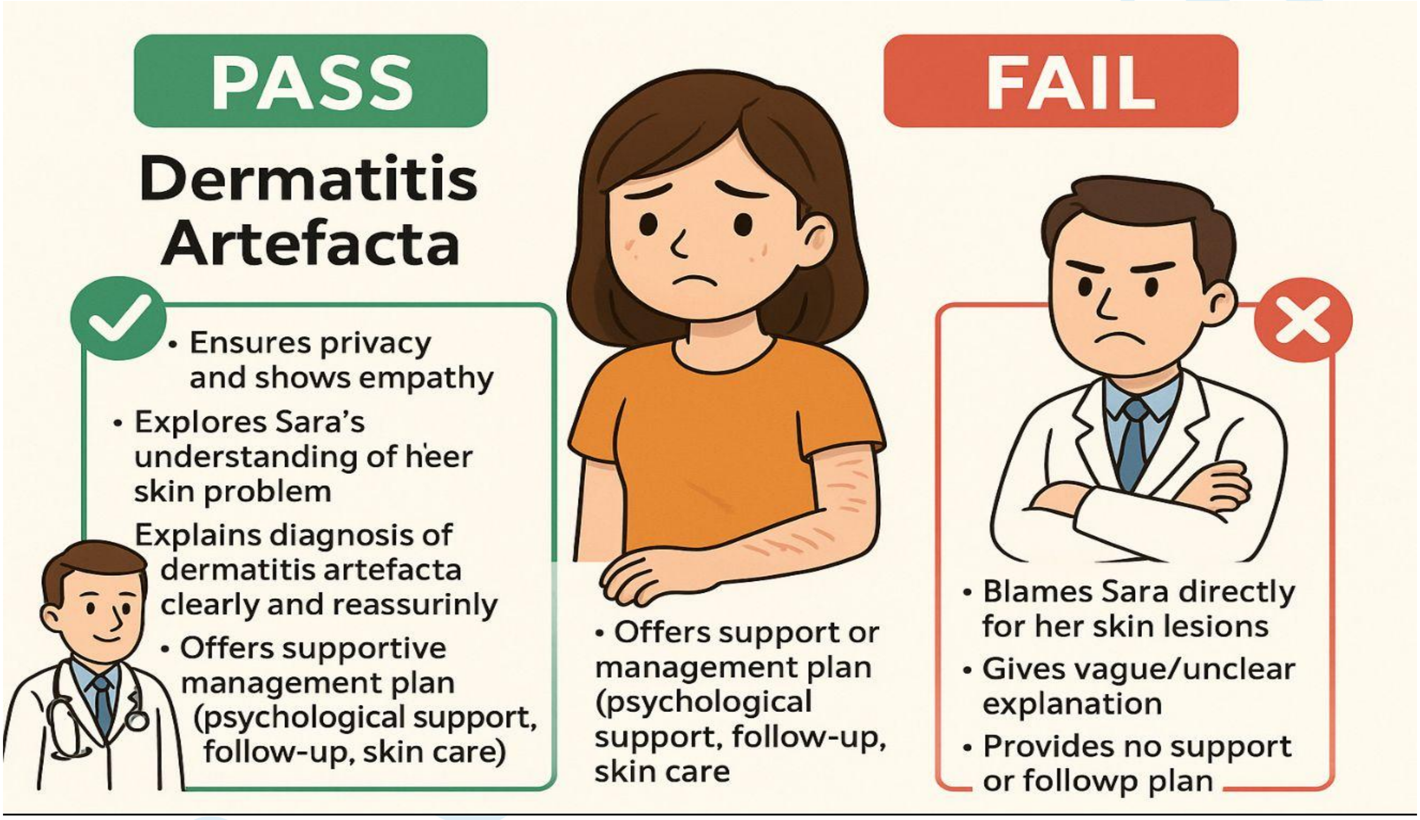
Sara:
So does it mean the skin doctor doesn't have a role in management?

Dr Ali:
Sometimes they put bandage or prescribe some creams or ointments to help with healing. But his not the mean leader for treatment of dermatitis artifacta because it's treated with a team including mental health service, psychologist, and talk therapist and he will be part of the team.

Sara, I want to thank you for talking with me today. I know this wasn't an easy conversation, but I hope you feel supported. We're here to help you—not just your skin, but you as a whole person, You're not alone.

Important key points:

- **Nature of the condition**:
    - Skin lesions are **self-inflicted**, often unconsciously, as a way of coping with stress.
    - Lesions are usually **linear, well-demarcated, on accessible areas**.
    - Investigations for infections, autoimmune, and allergies are negative.
    - Not a primary skin disease but a **psychological/psychiatric condition**.
- **Explaining to the patient**:
    - Important to avoid blame—emphasize it is **not their fault**.
    - Common in teenagers, often linked to stress or emotional difficulties.
    - Confidentiality is respected, except if safety is at risk.
- **Prognosis**:
    - With therapy and support, many young people improve and lesions heal.
    - Relapses (setbacks) may occur during stressful times, but recovery is possible.
- **Management**:
    - **Multidisciplinary approach**: dermatologist, mental health professionals, psychologist/therapist.
    - Main treatment: **psychological support, CBT, talk therapy**.
    - Dermatologist may still help with creams or dressings for skin healing, but not the primary lead.
    - Regular follow-up and building trust are essential.
- **Supportive approach**:
    - Focus on reassurance, non-judgment, and making the patient feel safe.
    - Encourage engagement with therapy while maintaining confidentiality.



PASS

Dermatitis Artefacta

- Ensures privacy and shows empathy
- Explores Sara's understanding of h'eer skin problem
- Explains diagnosis of dermatitis artefacta clearly and reassurinly
- Offers supportive management plan (psychological support, follow-up, skin care)

- Offers support or management plan (psychological support, follow-up, skin care

FAIL

- Blames Sara directly for her skin lesions
- Gives vague/unclear explanation
- Provides no support or followp plan

ETHICS

Epicure study

Role: Dr Nada ST4 in the Neonatal Intensive Care Unit (NICU).

Background information:
Mrs. Farida is currently 23 weeks pregnant and has started experiencing true labour pains, indicating that she is likely to go into labour within the next few hours. She is very worried about delivering her baby this early, and she has little understanding about premature birth.

Task:
Explain the full situation to Mrs Farida and answer all her concerns.

Dr. Nada:
good morning, Mrs Farida. I'm sorry to meet you in this difficult time. I'm here to talk with you about your baby and what to expect. Would you like someone to be with you, or would you prefer to speak privately?

Mrs Farida:
I don't know, Doctor… I wasn't expecting to deliver this early. I feel so sad and afraid for my baby. I've waited many years to have a child. Can you please tell me, is there any chance for my baby to be okay?

Dr. Nada:
I'm truly sorry you're going through this, Mrs. Farida. I want to reassure you that we are here to support and help you as much as possible.

Right now, you are in labour at 23 weeks of pregnancy. Based on many years of research and data about babies born at this age, unfortunately, they found most do not survive. Some pass away before or during delivery. Those who survive the delivery often die soon afterward, despite our best efforts, including intensive medical interventions like chest compressions, breathing support through a tube, and medications. Even the few who respond to these efforts usually suffer from severe and lifelong disabilities.

Mrs Farida:
Oh my God… this is devastating. I'm going to lose my baby… (crying)

Dr. Nada:
I'm so sorry for this heartbreaking news, Mrs. Farida. Can I offer you a tissue or some water?

Mrs Farida:
No, Doctor, thank you.

Dr. Nada:
I truly appreciate how difficult this is for you. I want you to know that, at the time of delivery, **a highly specialized team will be present to assess and care for your baby**. They will perform all possible supportive measures if they believe there is a chance for your baby to have a meaningful life. However, if they determine that your baby's condition is too severe—for example, if the lungs are too underdeveloped, or the body is too fragile—they may recommend what we call "**Comfort Care**." That means keeping your baby warm and comfortable, allowing nature to take its course, without painful or aggressive interventions. We will explain everything to you as it happens, and you will be involved in the decisions. Does this make sense?

Mrs Farida:
Yes, but is there anything I can do now to keep the baby inside longer? Can you help my baby after delivery? I don't want him to die…

Dr. Nada:
I totally understand your feeling, Mrs. Farida. I know how this is difficult for you. I will discuss with the women's doctor if there is anything can be done for you to delay your delivery. But as far as I know, you are in delivery right now. We will do everything we can, both for you and for your baby.

Mrs Farida:
Why did this happen to me?

Dr. Nada:
Actually, Mrs. Farida, many causes can lead to this condition, like if your water bag opened early or if the blood to the baby is affected. Also, causes related to your womb, or other things like smoking or drinking during pregnancy, or if your baby exposed to any infection.

Mrs Farida:
So can you explain to me what will be the next step?

Dr. Nada:
Yeah, after your delivery, we will examine your baby for any sign of life & we will try to help & give appropriate resuscitation as I explained to you. If we found your baby will not have chance for normal life, we will go through Comfort Care.

Mrs Farida:
Okay, Doctor.

Dr. Nada:
OK, Mrs. Farida, I'm really sorry for you. I hope the best for you & your baby. I'll give you a trusted website to read more about the outcome of these babies born at this age.

Mrs Farida:
So dr if the baby born in good condition is there any susceptible complications expected?

Dr. Nada: (don’t have to say everything)
Because your baby is only 23 weeks, his organs—especially the lungs, brain, and intestines—are still very immature. Even with intensive care, he may face serious problems, such as:

- **Lung problems:** The lungs are very immature, so your baby may have a lot of trouble breathing, even with a machine to help, and may have lung problems later.
- **Brain problems:** There is a high chance of bleeding in the brain, which can lead to disabilities, delays in development, or problems with learning later.
- **Eye problems:** The eyes may not develop properly, which can cause vision problems or even blindness.
- **Infections:** Premature babies have very weak defences against germs, so they can get serious infections easily.
- **Feeding and growing problems:** The stomach and intestines may not work well yet, so feeding can be hard, and your baby may grow slowly at first.

Because of these risks, babies born this early usually need to stay in the Neonatal Intensive Care Unit (NICU) for several weeks or even months—often until around their original due date or longer. Even with the best care, some babies may not survive, and others may have lifelong health challenges.

We know this is a lot of information to take in, and it is overwhelming. We will be here with you at every step, to support you and answer all of your questions. Please don’t hesitate to ask me anything at any time.

Gestational Age	General Approach	Parental Wishes
22 weeks	Resuscitation generally **not recommended** due to extremely low survival and high risk of severe disability. Focus on comfort care and palliative support.	If parents fully understand the prognosis but still wish resuscitation, it may be considered case by case.
23 weeks	Resuscitation **may be offered** but approached with caution because of low survival and high risk of severe complications.	If parents, after being fully informed, wish to pursue resuscitation, it should be provided, with close monitoring and reassessment.
24 weeks	Resuscitation is **generally recommended**, as survival improves significantly compared to 22–23 weeks. Intensive care initiated with parental consent.	Parents should be fully involved in decision-making and informed of risks and possible outcomes.
25 weeks	Resuscitation is **recommended**, as survival rates and outcomes are more favorable. Full intensive care is provided.	Parents are supported and informed about benefits and risks of care.
26 weeks	Resuscitation and intensive care are **standard practice**, as survival rates are relatively high and outcomes can be acceptable.	Parents are involved and informed, but full intensive care is generally expected.

If it was mentioned in the scenario that the mother received antenatal CST , or had preeclampsia use it as positive prognostic factor.

Withdrawal of care vs active care

Role: You are Dr Adam a senior paediatrician in the Neonatal Intensive Care Unit (NICU).

Background information:
Hassan is a medical student has just completed a shift during which they were involved in the care of two critically ill infants:

- Full term infant with severe Hypoxic-Ischemic Encephalopathy (HIE), now progressing to multi-organ failure despite maximal intensive support. After discussion, the medical team and the parents agreed to withdraw care, given the poor prognosis.
- Another infant, born at 26 weeks gestation, with severe (Grade 3) unilateral Intraventricular Haemorrhage, dependent on mechanical ventilation and with a guarded prognosis. For this baby, the team decided to continue active intensive care.

Task:
The medical student appears confused and emotionally unsettled, seeking to understand how decisions are made about whether to continue or withdraw life-sustaining treatment in such challenging situations. Explore that and answer all his concerns.

Dr. Adam:
good morning, Hassan. How is your rotation in our unit?

Hassan:
Dr. Adam, I'm feeling quite overwhelmed after today's shift. I don't fully understand how the decisions were made — why we decided to withdraw care from the term baby but continued active treatment for the preterm baby. It feels really hard to accept. Could you explain?

Dr. Adam:
Of course, Hassan. Thank you for sharing how you're feeling — it shows you care deeply about your patients. These situations are never easy, even for experienced doctors. Let me try to explain how we approach these decisions. But before I go on— can I ask, do you know what Hypoxic-Ischemic Encephalopathy is, and what is intraventricular heamorrhage?

Hassan:
No Dr.

Dr. Adam:
HIE is a type of brain injury that occurs when a baby's brain doesn't get enough oxygen

(hypoxia) and/or blood flow (ischemia) around the time of birth. This lack of oxygen and nutrients damages brain cells.

The severity can range from mild, where babies may recover well, to severe, where the injury is so extensive that it affects many parts of the brain and even other organs. In the severe cases — like the baby we saw today — the damage can lead to multi-organ failure, seizures, and no meaningful chance of recovery, despite intensive care.

Is that clear now?

Hassan:
yes, clear.

Dr. Adam:
Regarding intraventricular haemorrhage in preterm babies it's one of the common complications of preterm the small blood vessels in the brain are very fragile. Sometimes these tiny vessels can break and bleed into the spaces in the brain. The bleeding can be mild and cause no serious problems, but if it is more severe, it can damage the brain tissue. This may lead to long-term problems such as difficulties with movement (like cerebral palsy), learning, or development as the baby grows. Its 4 grades the baby here has grade 3 IVH.

Hassan:
But… it still feels like withdrawing care from the baby is wrong. Isn't it unethical to stop treatment? And why we stop treatment from the baby with HIE and continue treatment for the preterm?

Dr. Adam:
Those are really excellent and important questions, Hassan — and they show how deeply you're thinking about what's best for the babies. Let me explain.

First, about whether it's unethical: It's natural to feel that way at first — many of us do. But ethically, the most important principle we follow is to act in the **best interests of the baby**. When treatment no longer provides benefit — when it can't save the baby's life or would only prolong suffering — then continuing it can actually cause harm. At that point, it is not only ethical but compassionate and right to withdraw life-sustaining treatment, while ensuring the baby remains comfortable and supported. We never stop caring — we just change the focus to **comfort care**, also called palliative care.

Also for the premature baby he was born at 26 week and according to the **Epicure studies** carried out on many premature babies being 26 weeker has great chance to survive.

Now, to know if both decisions are ethical or not we can apply the ethical principles. Do you have any idea about it?

Hassan:
No, what is this?

Dr. Adam:
The ethical principles — autonomy, beneficence, non-maleficence, and justice

1️⃣ Autonomy

Babies, of course, cannot make decisions for themselves — so their parents act as their surrogate decision-makers.

We respect the **parents' autonomy** by fully informing them, listening to their values and wishes, and involving them in decision-making.

- For the **baby with HIE**, after we explained that continuing treatment would cause more suffering with no realistic chance of recovery, the parents agreed with the team to withdraw care — exercising their autonomy in the best interests of the baby.
- For the **preterm baby**, the parents also wished to continue active treatment, which aligned with the medical team's view that there was still a chance of benefit — respecting their autonomy as well.

2️⃣ Beneficence (doing good)

We aim to act in ways that benefit the baby — preserving life when possible, ensuring comfort, and promoting well-being.

- In the **HIE baby**, continued intensive care was no longer beneficial — the injury was irreversible, and the baby was suffering. In this case, withdrawing treatment and providing palliative care was the most beneficial course.
- In the **preterm baby**, despite the risks, there is still a meaningful chance of survival and possible quality of life — so continuing active care is consistent with beneficence.

3️⃣ Non-maleficence (do no harm)

We must avoid causing unnecessary harm or suffering.

- For the **HIE baby**, continuing invasive and painful treatment with no hope of recovery would cause harm without benefit — so withdrawing care was ethically correct.
- For the **preterm baby**, while treatment involves discomfort and risks, the potential benefits still outweigh the harms — so continuing treatment does not violate this principle.

4️⃣ Justice (fairness, equity)

- Justice means treating each patient fairly and allocating resources responsibly.
- The decision to withdraw care for the **HIE baby** and continue for the **preterm baby** was based on clinical facts and ethical reasoning, not bias or discrimination — ensuring that each baby was treated fairly according to their situation.

DR. Ghida Refaat

(In between check understanding and try to engage him in conversation don't speak too much just according to the scenario, don't mention brain stem death here because it wasn't given in the background information)

Hassan:
That makes so much sense now — thank you for breaking it down like that.

Dr. Adam:
So Hassan do you have any idea how the withdrawal of care is done?

Hassan:
No Dr it's my first time to attend something like this.

Dr. Adam:
Withdrawal means removal of already given care, like we are now on ventilator so we will remove it, now on inotropes so we will stop it. But withhold of care means do not actively resuscitate, don't initiate resuscitation.

If the child was announced for withdrawal of care, we need to discuss with the parents first to see if they will go through this or not. Then we involve the ***tender loving team***, have you heard about this team before?

Hassan:
No Dr

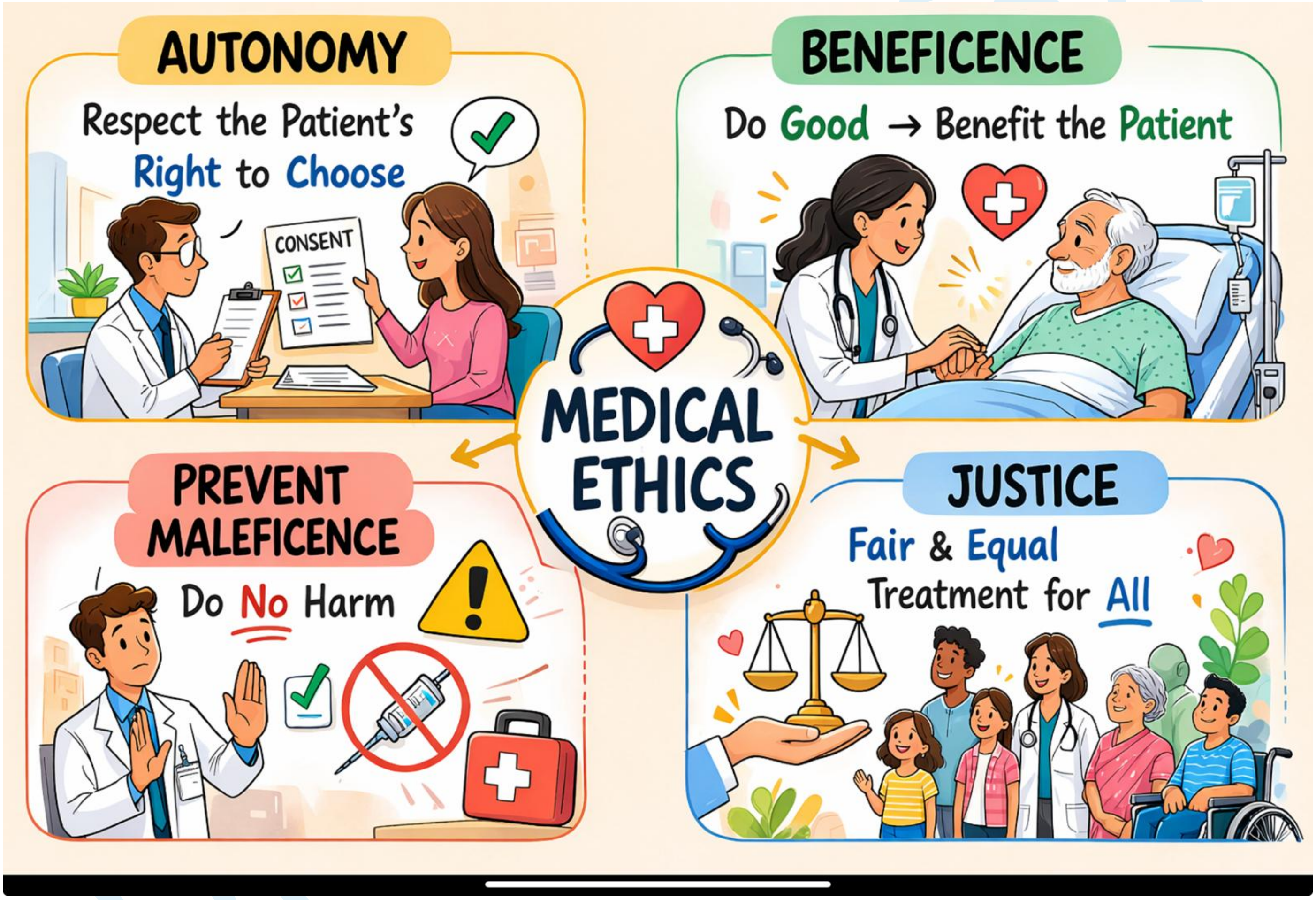
Dr. Adam:
When we withdraw intensive medical interventions, we don't stop caring. Instead, the **tender loving team** — which may include doctors, nurses, neonatal palliative care specialists, psychologists, chaplains, and others — comes together to make sure the baby is comfortable, and the parents feel supported and cared for too. Addressing not just the baby's physical needs, but also the emotional, psychological, and spiritual needs of the family. It's about making sure that even in the most difficult moments, the family feels surrounded by a tender, loving, and respectful team.

Hassan:
but Dr what would happen if the parents refused the withdrawal?

Dr. Adam:
So if the parents have the right to refuse, of course they can refuse but sometimes the decision is delegated to the court & sometimes to the team. But the perfect case is when the parents take this decision after knowing the circumstances of the child.

Hassan:
So who can decide for this?

Dr. Adam:
Team of treating physicians & the consultant usually take the decision after performing brain stem death tests & EEG & then they decide. There will be 2 separate teams come on separate time 24 or 48 hr apart from each other according to the condition & circumstances & then decide the child on DNR status.


AUTONOMY
Respect the Patient's Right to Choose
CONSENT
BENEFICENCE
Do Good → Benefit the Patient
MEDICAL ETHICS
PREVENT MALEFICENCE
Do No Harm
JUSTICE
Fair & Equal Treatment for All

Non Accidental Injury

NAI.

Important to know what is the candidate must show in the exam ?

You need to ask one or two polite questions

Investigating why injury happen

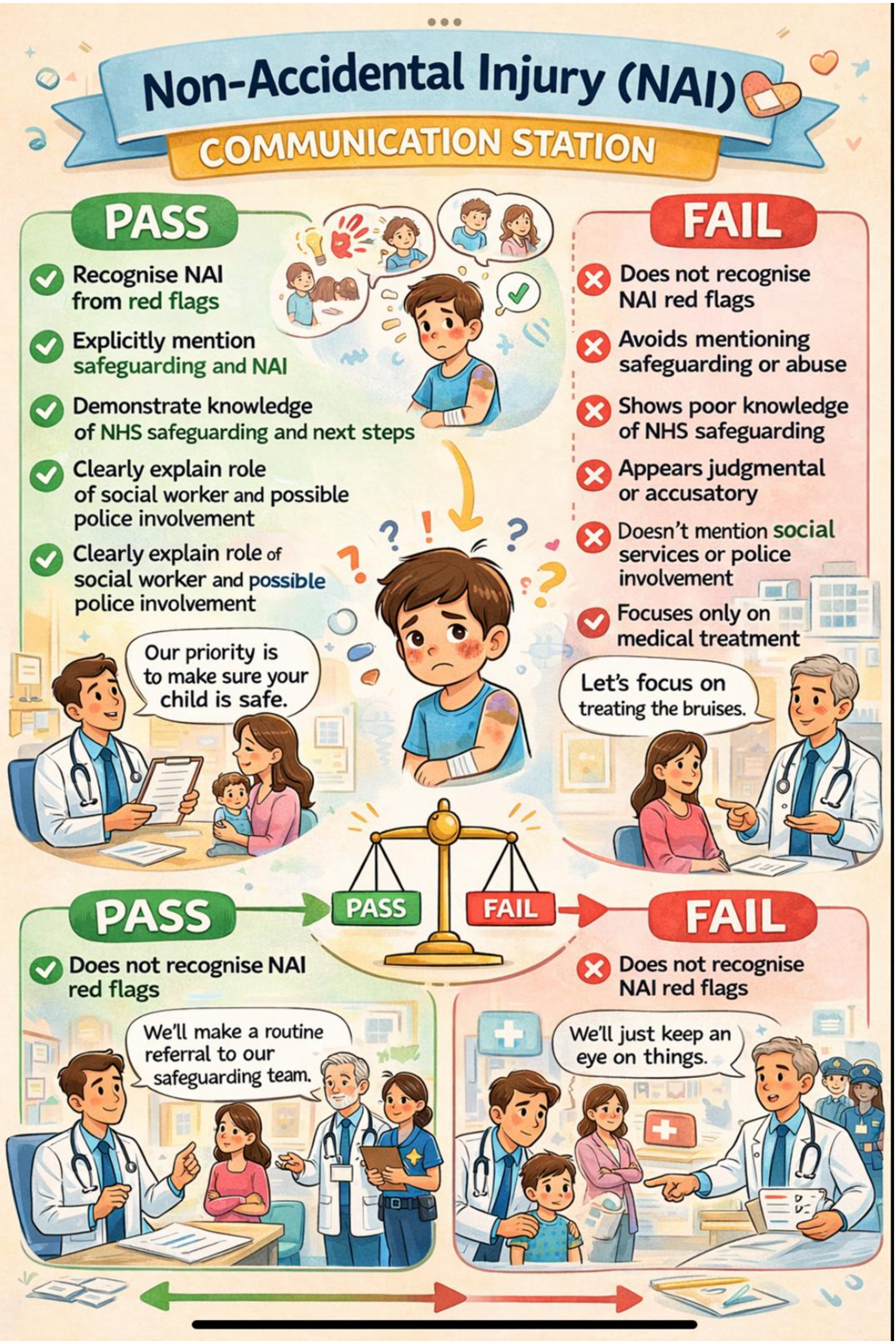
Example

Gentle, Non-Judgmental Questions

- “We noticed some bruises on Aisha. Can you help me understand how these might have happened?”

- “Sometimes injuries happen during play or accidents. Do you have any idea what might have caused these bruises?”

- “Could you tell me a bit more about what happened before you noticed these marks on Aisha?” Youcan mention that brushes is unlikely to happen because of physiotherapy and ask her opinion if she mention she smacked her don’t judg her at all only express empathy and support .



Non-Accidental Injury (NAI)

COMMUNICATION STATION

PASS

- ✓ Recognise NAI from red flags
- ✓ Explicitly mention safeguarding and NAI
- ✓ Demonstrate knowledge of NHS safeguarding and next steps
- ✓ Clearly explain role of social worker and possible police involvement
- ✓ Clearly explain role of social worker and possible police involvement

FAIL

- ✗ Does not recognise NAI red flags
- ✗ Avoids mentioning safeguarding or abuse
- ✗ Shows poor knowledge of NHS safeguarding
- ✗ Appears judgmental or accusatory
- ✗ Doesn't mention social services or police involvement
- ✓ Focuses only on medical treatment

"Our priority is to make sure your child is safe."

"Let's focus on treating the bruises."

PASS

FAIL

PASS

- ✓ Does not recognise NAI red flags

"We'll make a routine referral to our safeguarding team."

FAIL

- ✗ Does not recognise NAI red flags

"We'll just keep an eye on things."

NAI

Role: You are ST4 Ped Registrar Dr Ali – talking to Mrs Layla Mother of Aisha to discuss her concern over Aisha's bruises.

Background information:
Aisha is 4 yr. diagnosed with cystic fibrosis at 3month of age. She was admitted yesterday with fever & Productive Cough. On admission Dr Ahmed the Senior house officer noticed bruises to her back & chest. When questioned, the Parents explained that these occurred during Physiotherapy. Subsequent discussion with CF nurse revealed that there are other Concerns – as Aisha attended the A&E on four recent occasions with minor injuries. & CF nurse noted bruising in the Past visits to which Parents offered similar explanations.

Task: You have been asked by Dr Ahmed to talk about the bruising to her mother, who apparently become angry & defensive when approached her.

Dr. Ali:
Good morning, Mrs. Layla. Thank you for coming in to speak with me. I'm Dr. Ali, one of the paediatric doctors here, and I'm here to talk about Aisha. I understand this might be a difficult conversation, but we're trying to get a clearer picture of her condition. Can you tell me what concerns you have about Aisha, or perhaps what has happened recently?

Mrs Laila:
I don't know dr she always gets sick because she has cystic fibrosis.

Dr. Ali:
Mrs. Layla, I can only imagine how incredibly challenging it must be for you to manage Aisha's CF and her frequent illnesses. It sounds like you're under a lot of pressure, and I truly acknowledge how tough that must be. We're all here to support Aisha and your family. If you don't mind, I wanted to ask about something specific that Dr. Ahmed noticed when Aisha was admitted: some bruises on her chest and back. Do you have any explanation for how those might have occurred?

Mrs Laila:
No Dr. they always ask me about it.

Dr. Ali:
I understand this isn't the first time you've been asked, and that can feel repetitive. Just to make sure we're on the same page, do you know about Aisha's diagnosis of Cystic Fibrosis?

Mrs Laila:
Yeah, I know CF, she has been diagnosed with since she was 3month old. But I have problem with that because I'm a mother of 3 other older children from another partner and

other kid 2 yr old from Aisha's dad. So, I have big trouble with that. It's a big family I can't deal.

Dr. Ali:
Mrs. Layla, thank you for sharing that with me. It sounds like you're having huge amount of responsibility with a large family, and that must be incredibly overwhelming. It's completely understandable to feel like you can't deal when you're under such stress.

Regarding the bruises, when we examined Aisha, we couldn't find any medical explanation for them. This is why we need your help to understand. If you could try to recall anything at all about how these bruises might have happened, it would be really important for Aisha's care.

Mrs Laila:
I can't remember but Aisha is very naughty, she may hit herself or it may be related to her CF or from Physiotherapy.

Dr. Ali: (in between ensure understanding)
I appreciate you offering those possibilities, Mrs. Laila. However, I'm afraid that from a medical perspective, it's quite unlikely these bruises happened from physiotherapy or from Aisha hitting herself, especially those on her back. **Trauma in the back, particularly bruising like this, is atypical and uncommon to occur from a child's self-inflicted injury.**

You also mentioned Aisha's CF. You're absolutely right that **CF can sometimes cause a deficiency in Vitamin K**, which can lead to a *bleeding tendency*. And yes, some medications, like certain **corticosteroids (CST),** can *thin the skin and make bruising more likely*. We always consider these factors with our CF patients.

However, when we look at all the circumstances – Aisha's previous visits to A&E for minor injuries, the recurring bruising that was explained similarly, and the specific nature and location of these new bruises – it makes us believe that **these bruises are atypical for bleeding tendency alone.** This combination of factors leads us to seriously consider that there might be **something impacting Aisha's safety**.

Mrs Laila:
Ok Dr I'm obsessed but I used to smack my child when they are so naughty, but this doesn't happen often. It's even more difficult when Aisha is in hospital. My mother will look after Hamza my youngest & the older 3 Sometimes go to neighbours – Aisha's father works for long hours but tries to come to hospital after work. But he doesn't like hospitals. So, we will not stay with Aisha overnight.

Dr. Ali:

Mrs. Layla, thank you for being so open and sharing those very personal details with me. I understand you're feeling a great deal of pressure. It sounds like you're managing incredibly complex family dynamics and significant challenges. Please know that we are here to support both you and Aisha. Our primary focus right now, above everything else, is to ensure Aisha's safety and well-being. That is our absolute priority.

Mrs Laila:
OH, I'm Scared now is the Social Service or Police will be informed now?

Dr. Ali:
I completely understand why you would be scared, Mrs. Laila, and it's natural to feel that way when these kinds of concerns are raised. Our absolute priority right now is to ensure Aisha is safe, and that includes her siblings as well. That's why we are going to **admit Aisha** to the ward so we can do all the necessary **thorough investigations**. As part of our duty to safeguard children, we will also be **informing Social Services** and **child protection team**. This is a standard procedure when we have concerns about a child's safety, and it's designed to provide support and ensure the best outcome for Aisha.

Mrs Laila:
OH Dr they will take Aisha from me. Please don't inform social service.

Dr. Ali:
Mrs. Laila, I hear your fear, and I want to reassure you as much as possible. Social Services are actually a key part of our team in situations like this. We *must* inform them because **their role is to ensure a child's safety**, but I want to be absolutely clear: **their aim is not automatically to take Aisha away from you**. Their primary goal, just like ours, is Aisha's best interest and to support families. The social worker, who is a very important member of this team, will be working to **understand all the child's circumstances and your family's situation to ensure Aisha's home environment is safe and supportive**. They are there to **offer support to you** as well.

Mrs Laila:
So, Dr what is the next step now?

Dr. Ali:
Thank you for asking, Mrs. Laila. The immediate next steps are that we will admit Aisha. We'll carry out a series of tests to thoroughly investigate the bruising and ensure there are no underlying medical reasons. This includes tests to check if she has any bleeding tendency. We may also need to do an eye examination, and sometimes, for certain bruises, we might need to do further scanning. All of this is to ensure we understand exactly what has happened to Aisha and how best to protect her.

Mrs Laila:
Will you inform the Police?

Dr. Ali:
Mrs. Layla, I understand your concern about the police being involved, and that's a very serious question. Please know that while our immediate focus is always on Aisha's safety, the Police are also part of a larger team that works to ensure a child's well-being. They might

need to get involved at any point if it becomes necessary, because our mission above all else is to make sure Aisha is safe. For now, as I've already mentioned, we are definitely involving the Child Protection team – that includes our Consultant, a Social Worker, and an Investigator. If the situation requires it, the Police and other authorities may also become involved, but our primary focus remains on ensuring Aisha's safety through this very established and careful process.

Mrs Laila:
can you do these investigations now and let us go home?

Dr. Ali:
Mrs Laila, I understand completely that you'd want to get home as soon as possible, and I know this is a difficult time for you to be here. We truly wish we could do these investigations quickly and send Aisha home right away. However, for Aisha's safety, and to ensure we get a complete and accurate understanding of everything, these investigations are thorough and can take some time. We need to admit Aisha to the ward to carefully perform all the necessary tests and assessments. This is the safest way to ensure we don't miss anything important and to properly look after her. We appreciate your patience and cooperation as we work through this for Aisha's best interest.

Mrs Laila:
But I can’t be admitted with her as I have other small children.

Dr. Ali:
Mrs. Laila, I truly understand that you have significant responsibilities with your other young children at home. That's a very real concern. While we understand you can't be admitted with Aisha, please be assured that Aisha will receive excellent care here from our dedicated nursing and medical team. We will keep you updated regularly on her progress.

Mrs Laila:
For how long will she be admitted?

Dr. Ali:
that’s very good question Mrs Laila, I wish I could give you exact timing but we don’t know exactly how long t could take, but make sure as early as we finish all our investigations and making sure that everything in Aisha’s circumstances is safe, we will discharge her.

Mrs Laila:
Ok dr thank you.

Huntington disease

Background information: Mrs. Nada, a female, is distressed following her father's recent diagnosis of Huntington's disease, a condition she understands to be hereditary. Her father, who was healthy until the age of 55, has now received this diagnosis. Mrs. Nada is seeking information regarding the situation and expresses concern for her daughter, wishing to pursue genetic investigation for her.

Role: Dr Omar ST4 Registrar.
Task: Explain to Mrs Nada the condition and answer all her concerns.

Dr. Omar:
Good morning, Mrs Nada. Would you tell me what's your main concern today?

Mrs Nada:
I don't know, Dr. My father was OK & now diagnosed with something called Huntington's disease. He has signs like Alzheimer's, he is forgetting & now. They told me it's inherited. So can you tell me first what Huntington is?

Dr. Omar:
I'm sorry for that Mrs. Nada, I hope the best for your daddy. **Huntington's disease** is a disease affecting the brain, causing break down of the nerves causing them to stop working. It's caused by a faulty gene called **Huntington gene** which causes production of toxic element that damage brain cell overtime.

Mrs Nada:
what is the effect of this disease?

Dr. Omar:
The person who has Huntington appears normal till the gene starts to work in his body. The problem is that when the symptoms start it can go in clusters in many things extending to all the brain function, including the patient cannot recall information, unable to interpret it, unable to move, unable to work. Sometimes it can affect vision also thinking problem. So many things can be involved.

Mrs Nada:
So Dr, what about the inheritance? What is the percentage to be affected & the percentage of my girl?

Dr. Omar:
Huntington's inherit through something called **Autosomal dominant**, which means if one parent has the gene, each child has a percentage of 1:2 to have the disease. & if the child inherited the gene definitely, he will have the disease at his mid-life.

There are **2 types of Huntington's**:

1. ***The classical type*** which usually starts in the mid-life.
2. The other one is ***juvenile type*** which start early on life around 18 years-20 years. The person who gets that will have some mood, behavioural changes & problems with thinking, speech & swallowing.

Mrs Nada:
So Dr, what about the **gene test** through the NHS?

Dr. Omar:
The individuals who meet certain **criteria** can only have the test:

- Individual & Family history of the disease.
- Individual who experiences symptoms of the disease.
- Adult Person because it's done by Blood Sample.

So, it's important to know that it's a **personal decision** as it can have psychological impact on the person & on his family as well. That's why it's **very individualised & no one can take this decision on behalf of another person.**

Mrs Nada:
What are the Pros & Cons? Why is it like that?

Dr. Omar:
Because some people want to prepare for the end of their life & how they will move on in their life with this condition. Some time they need to assign autonomy, or something related to insurance & many things like that.

And some people don't want to know as this disease has no cure & nothing can be done to prevent it. So, if he knows this, it can disturb his life, he can't enjoy his life. So, they don't want to know until it happens.

Mrs Nada:
And if anyone wants to have the gene test is he able to do it directly?

Dr. Omar:
No, Gene test for Huntington's pass-through various steps:

- Neurological assessment
- Gene Counselling
- Check symptoms
- Other assessment
- Blood test

Mrs Nada:
Why didn’t my grandfather have the disease?

Dr. Omar:
Gene problem could be accelerated in generations so it can occur more & more in next generations.

Currently no cure for Huntington's. However, medication can help control symptoms. Some people will help employability.

Mrs Nada:
How it could be treated?

Dr. Omar:

I’m sorry Mrs Nada but currently **There’s no cure for Huntington’s, but we can help with the symptoms and keep your loved one as comfortable and independent as possible for as long as we can.**

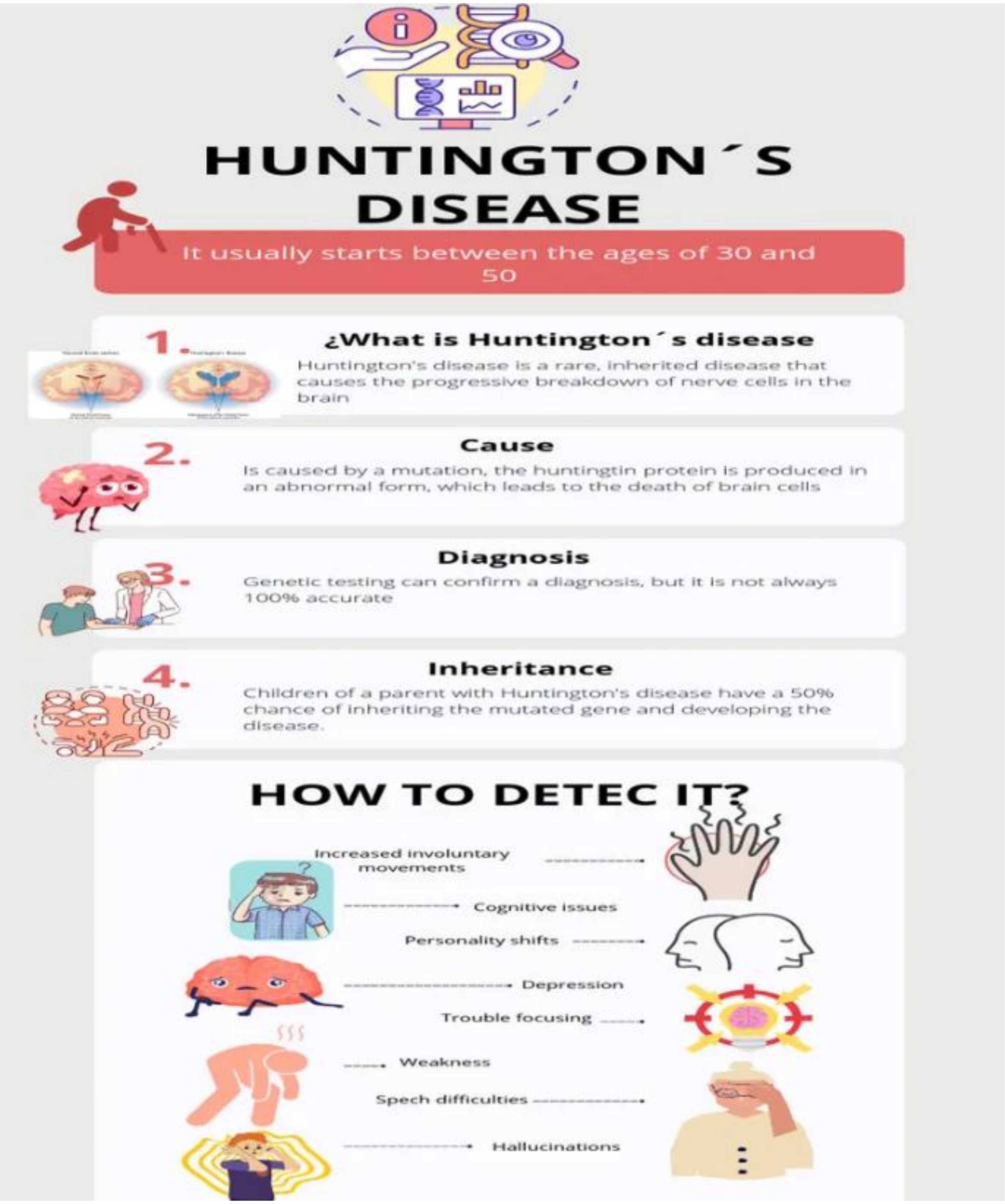
The doctors and nurses will put together a **multiple team** to help with different problems:

☑ **Therapies** —

- A **physiotherapist** to keep them walking and prevent falls.
- A **speech therapist** helps with talking and swallowing if it becomes hard.
- A **dietitian** ensures eating enough and not losing too much weight.
- An **occupational therapist** makes the home safer and easier to move around in.

☑ **Medicines** —To calm the jerky movements, to help with low mood, anxiety, or if they feel very upset or angry sometimes.

☑ **Support for the family too** —support groups.



HUNTINGTON´S DISEASE

It usually starts between the ages of 30 and 50

1. ¿What is Huntington´s disease

Huntington's disease is a rare, inherited disease that causes the progressive breakdown of nerve cells in the brain

2. Cause

Is caused by a mutation, the huntingtin protein is produced in an abnormal form, which leads to the death of brain cells

3. Diagnosis

Genetic testing can confirm a diagnosis, but it is not always 100% accurate

4. Inheritance

Children of a parent with Huntington's disease have a 50% chance of inheriting the mutated gene and developing the disease.

HOW TO DETEC IT?

- Increased involuntary movements
- Cognitive issues
- Personality shifts
- Depression
- Trouble focusing
- Weakness
- Spech difficulties
- Hallucinations

Osteosarcoma ethical dilemma

Ethical Dilemma
Conflict between two ethical principles where choosing one compromises the other,
Choosing one, compromises the other...

Role: Dr Ali ST4 Paediatric registrar.

Background information:

Adel, a 15-year-old boy, has a mass in the shaft of his tibia. His X-ray shows a "sunburst" appearance, raising suspicion of osteosarcoma. A biopsy is planned for tomorrow. The parents have asked not to inform Adel yet. Sara, the pediatric nurse, questions this decision and feels uneasy withholding such serious information from a teenager.

Task:
Talk to Sara clinical nurse and answer all her concerns.

Dr. Ali:
good morning, Sara thanks for taking the time to chat. I know you’ve been working closely with Adel, and I wanted to discuss the plan for his biopsy tomorrow, specifically regarding the information we’re sharing with him. I understand you have some concerns about withholding the suspicion of osteosarcoma from him, and I want to make sure we’re all on the same page ethically and clinically.

Sara:
Thanks, Dr. Ali. Yes, I do feel quite uneasy about it. Adel is 15, and he’s old enough to understand a lot more than we sometimes give teenagers credit for. The parents have asked

us not to tell him about the osteosarcoma suspicion yet — they just want us to “do the biopsy and not scare him.” But it feels like we’re hiding serious information. My main concern is around transparency and Adel’s right to know about his own health.

Dr. Ali:
I completely understand your perspective, Sara, and your concerns are very valid and important. It's a challenging situation, and we need to navigate it carefully, keeping Adel's best interests at heart while also respecting the parents' wishes.

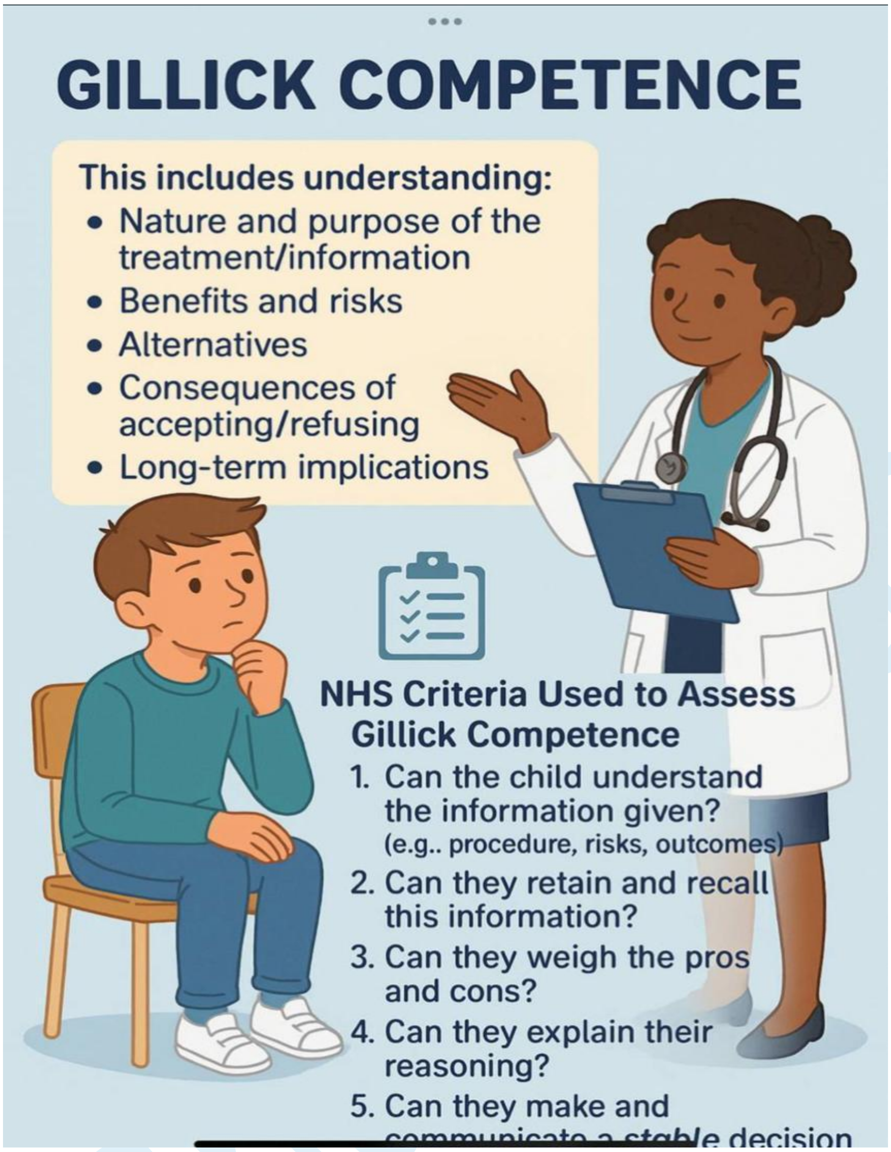
You're right, the GMC guidance is clear about open communication. The parents are indeed aware of the osteosarcoma suspicion, and their request to withhold this from Adel is driven by a desire to protect him from distress before we have a confirmed diagnosis. They're hoping to shield him from worry until we have more definitive information from the biopsy.

We have to look at the whole scenario and consider the pros and cons of each approach.

Sara:
I see that, but even if it's a suspicion, it's a significant one. How do we balance protecting him from distress with his right to know? And what about the consent for the biopsy itself? Shouldn't he be fully informed about why it's being done, including the potential diagnosis we're investigating? And how long will this withholding of information last? Will we tell him once we confirm the diagnosis?"

Dr. Ali:
You've hit on the core of the ethical dilemma here, Sara. This is where the concept of **'Gillick Competence'** becomes crucial. For any significant medical decision involving a minor, we need to formally assess their capacity to understand and make decisions. This isn't just about age, but about their ability to comprehend:

- The nature and purpose of the information or treatment.
- The benefits and risks involved.
- Any alternatives.
- The consequences of accepting or refusing.
- And the long-term implications.



GILLICK COMPETENCE

This includes understanding:

- Nature and purpose of the treatment/information
- Benefits and risks
- Alternatives
- Consequences of accepting/refusing
- Long-term implications

NHS Criteria Used to Assess Gillick Competence

1. Can the child understand the information given? (e.g.. procedure, risks, outcomes)
2. Can they retain and recall this information?
3. Can they weigh the pros and cons?
4. Can they explain their reasoning?
5. Can they make and communicate a stable decision

We need to see if Adel can understand the information, retain it, weigh the pros and cons, explain his reasoning, and make a stable decision.

We won't go into the full details of the osteosarcoma suspicion right away, as the parents have requested, but we will explain the biopsy procedure thoroughly and why it's necessary to investigate the mass. As for the **consent for the biopsy**, it absolutely must include every single detail: **how the procedure is done**, **the possible complications**, **who will do it**, and it needs to clearly answer all parent concerns.

Transparency is key to maintaining trust between the doctor and the patient.

Sara:
So, if he is deemed Gillick competent, then we absolutely have to tell him? And what about the parents' right to know? They've been informed, but can we proceed with the biopsy without Adel's full knowledge, even if they've consented?

Dr. Ali:
Precisely. **If Adel demonstrates Gillick competence, then it's his right to be fully informed and involved in decisions about his care, including the suspicion of osteosarcoma.** In that scenario, we would then have a more in-depth conversation with him, ensuring he has all the information. We would also support his parents in understanding why this transparency is vital, even if it's difficult for them. It's about respecting his autonomy and building trust.

Regarding the parents' consent for the biopsy without Adel's full knowledge of the suspicion, while they are aware, we are facing an autonomy dilemma here. The parents are trying to protect Adel, which is understandable, but Adel's right to know about his own health is paramount, especially at 15. The principle of beneficence means doing the best thing for the patient. Informed consent isn't just about the form; it's about ensuring the patient has the information to make the appropriate decision. We need to give them the information in a good way so they can accept it. In medical ethics, there isn't always a clear-cut answer, and we often find ourselves in a dilemma, but we must always prioritize the patient's best benefit and prevent maleficence.

Sara:
And what if he's not considered Gillick competent at this moment? And will this withholding of information last long? Once we confirm the diagnosis, will we tell him then?

Dr. Ali:
If, after our assessment, we determine that **Adel isn't yet Gillick competent**, then the team *may* **delay telling him the full suspicion with valid justification**. However, this delay would be temporary. We must prepare to involve him sensitively very soon.

The goal is always full disclosure once he's ready and able to process the information. We would then work closely with his parents, helping them understand that while they have parental responsibility, Adel's right to be informed grows with his capacity.

And yes, once we confirm the diagnosis, we will certainly tell him at that time. We're not saying we're doing this biopsy *because* it's osteosarcoma, because it's still a possibility, not a certainty. If this information could distress Adel to a great extent, we might initially make it a 'light touch' to rule out serious issues, without specifically mentioning osteosarcoma until we have a confirmed diagnosis.

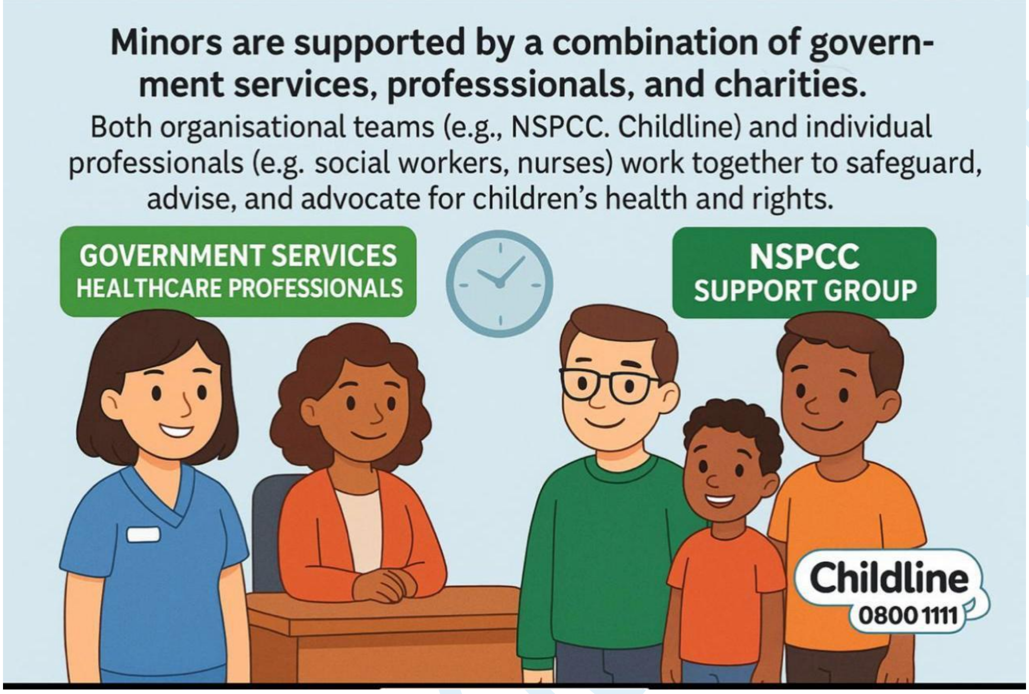
This could be the best scenario to avoid causing unnecessary distress over a possibility, but only if he's not Gillick competent.

Sara:
That makes more sense. It's about finding that balance, isn't it? And ensuring we don't just protect him but also empower him.

Dr. Ali:

Exactly. And to support everyone through this, we should consider involving a **clinical**

psychologist or a youth advocate. They can offer invaluable support to Adel, helping him process the information, and also guide his parents and us on the best way to communicate. Remember**, minors are supported by a combination of government services, healthcare professionals, and charities like Childline and NSPCC**, all working to safeguard their health and rights. We're not alone in this. It's important to respect Adel's right to be involved in decisions about his care.



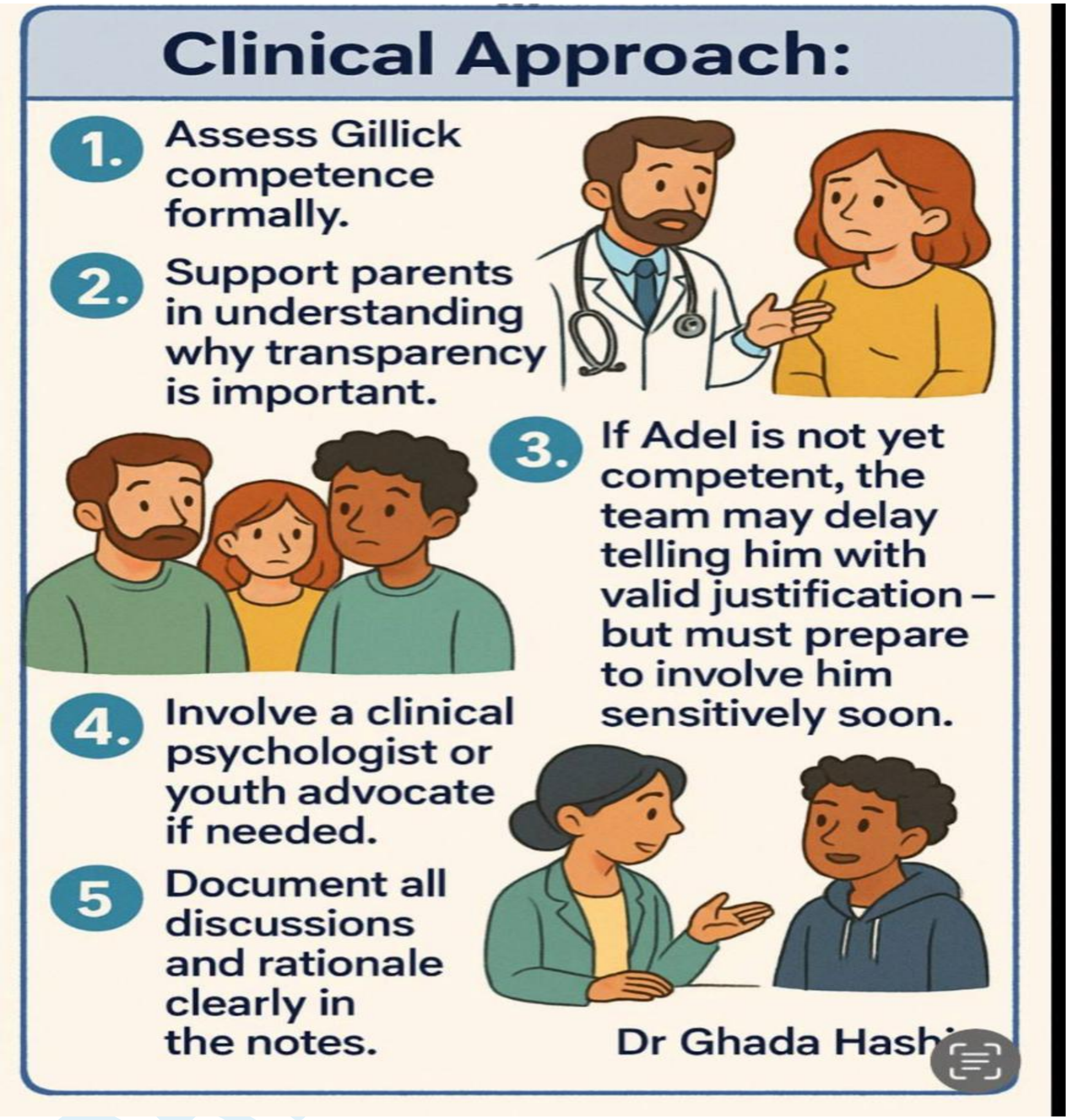
Minors are supported by a combination of government services, professsionals, and charities.

Both organisational teams (e.g., NSPCC. Childline) and individual professionals (e.g. social workers, nurses) work together to safeguard, advise, and advocate for children's health and rights.

Sara:
That's a good point. Having that extra support would be beneficial for Adel and his family. And for us too, to ensure we're handling this as best as possible."

Dr. Ali:
absolutely. Finally, it's crucial that we **document all our discussions** clearly in Adel's notes – our rationale for any decisions, the assessment of his Gillick competence, conversations with his parents, and the plan for future disclosure. This ensures continuity of care and transparency within the team.

So, my immediate plan is to assess Adel's understanding before the biopsy, explain the procedure thoroughly, and then we'll review his Gillick competence. We'll keep the lines of communication open with his parents and, if needed, bring in a psychologist. How does that sound to you?



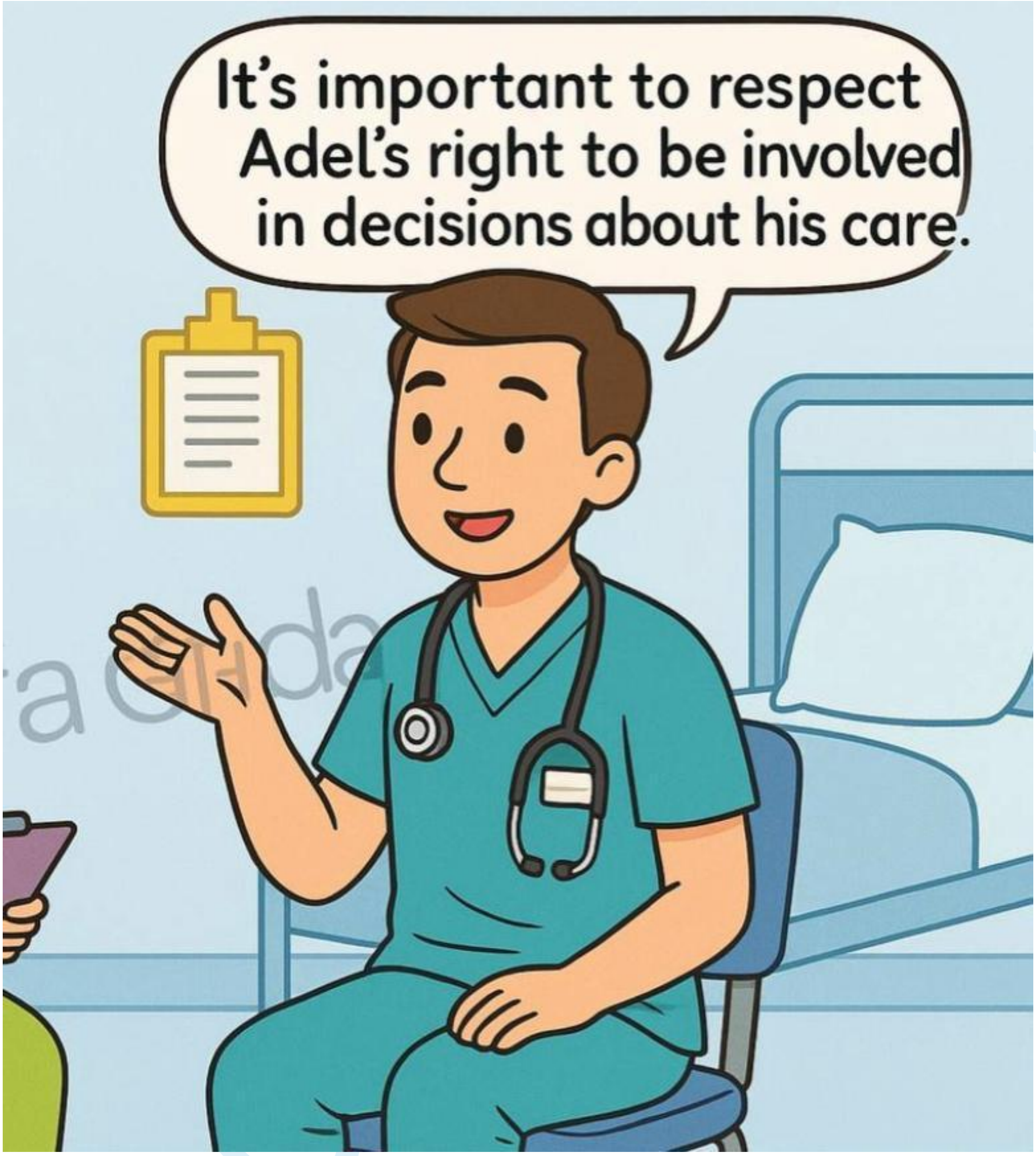
Clinical Approach:

1. Assess Gillick competence formally.
2. Support parents in understanding why transparency is important.
3. If Adel is not yet competent, the team may delay telling him with valid justification – but must prepare to involve him sensitively soon.
4. Involve a clinical psychologist or youth advocate if needed.
5. Document all discussions and rationale clearly in the notes.

Dr Ghada Hash

Sara:
That sounds like a much more comprehensive and ethical approach, Dr. Ali. I feel much more comfortable with this plan. Thank you for taking the time to explain it so thoroughly."

Dr. Ali:
My pleasure, Sara. Your input is invaluable, and it's essential we work together on these sensitive cases."


It's important to respect Adel's right to be involved in decisions about his care.

DR.

Communication

Orthopaedics

By Dr Ghada Refaat

Osteosarcoma

Role: Dr Laila ST4 in the Neonatal Intensive Care Unit (NICU).

Background information:

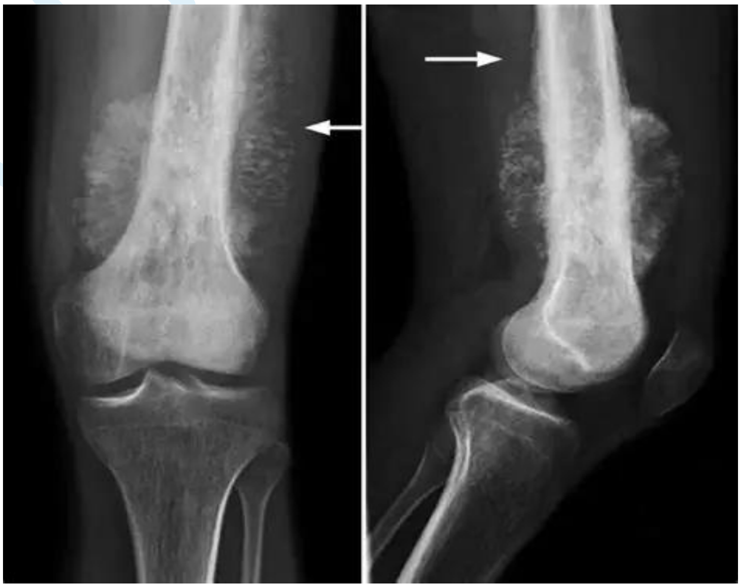
Ali is a 5-year-old boy. His mother, Farida, brought him to the GP because of bone pain. He was given several medications, and his symptoms improved for a while. However, sometime later he sustained a fracture. When an X-ray was done, it showed a characteristic "sunburst" appearance of the bone.

Task:
Discuss with the mother the possible causes of his fracture and the possibility of osteosarcoma.

Dr. Laila:
Mrs. Farida, we got the result of the X ray of Ali, would you like anyone else to join you before we continue?"

Mrs Farida:
No Dr can you tell me what does it show?

Dr. Laila:
I'm very sorry to meet you under such circumstances. After examining Ali and reviewing his X-rays, we found something concerning that suggests he might have a condition called **osteosarcoma.** But to be sure, we need to do more tests to confirm this and to rule out other possible causes.
Have you heard of osteosarcoma before?



Mrs Farida:
No, doctor, what is this?

Dr. Laila:
I’m so sorry for this heartbreaking news, Mrs. Farida. Osteosarcoma is a type of bone cancer. It usually develops in long bones, like those in the thigh or leg. It happens when certain bone cells grow in an uncontrolled way, which is what we call cancer.

Mrs Farida:
Oh! My child has bone cancer. I can’t imagine… I thought he just had a broken bone. (crying)

Dr. Laila:
I really understand how you’re feeling. Here’s a tissue if you’d like. I want you to know you’re not alone in this. We have a whole team who will support you and guide you through every step. When you feel ready, shall we continue? There may be some hopeful information as well.

Mrs Farida:
Yes, but doctor, I wonder, how did he break his bone if it’s cancer? He didn’t have any trauma.

Dr. Laila:
I’m really sorry this happened. You’re right — normally bones break after a significant injury. But in osteosarcoma, the cancer weakens the bone, making it fragile and more prone to breaking even without a big trauma. That’s why he had a fracture.

Mrs Farida:
Doctor, can you tell me what the next step is?

Dr. Laila:
Of course. I want to assure you that we’re all here to support you and Ali through this. The first step is to confirm the diagnosis by taking a small piece of the bone — a biopsy — which will be examined under a microscope. We’ll also need to check if the disease has spread by doing some scans of his chest, brain, and other bones. Once we know the full picture, the team — which includes bone specialists and cancer doctors — will create a treatment plan.

Mrs Farida:
I’m still confused… why did this happen to my child?

Dr. Laila:
That’s a very natural question, and I really understand your concern. In most cases, osteosarcoma happens without a clear reason — it seems to occur suddenly because of changes in the bone cells that we can’t predict or control. Some rare factors, like previous radiation or certain inherited conditions, may play a role, but in most children, there’s no identifiable cause. What’s important now is that with medical advances, many children can recover and return to a normal life.

Mrs Farida:
What is the outlook?

Dr. Laila:
Ali will have a team caring for him, including bone doctors, cancer specialists, social workers, and occupational therapists who can even help make your home more comfortable for him. The outlook depends on how early we catch the disease, how much it has spread, and how well he responds to treatment — but with modern medicine, many children do very well and can grow up healthy.

Mrs Farida:
Are you sure it's not just growing bones, like the GP said?

Dr. Laila:
I'm sorry to say that the findings on his X-ray are more consistent with osteosarcoma than normal bone growth. That's why we need to confirm with a biopsy — to be absolutely certain before starting treatment.

- **Mrs Farida:**
What about his school? He'll miss so many days…

Dr. Laila:
That's a very good question, and we can work with his school to support him. Many hospitals have school liaison programs and resources like home tutoring, online learning, and special accommodations to keep children connected to their education and classmates as much as possible.

Mrs Farida:
Is their support for children like him in the UK?

Dr. Laila:
Yes, absolutely. There are many resources — counsellors, support groups for families and children with cancer, charities, and social workers who can help with emotional, practical, and financial support. We'll connect you with all of them.

Mrs Farida:
I'm so overwhelmed… am I going to lose my child?

Dr. Laila:
I really do appreciate how worried you are — any mother in your place would feel the same. I want you to know that while cancer can sound frightening, many children recover with treatment and go on to live normal lives. We will do everything we can to give Ali the best chance.

Mrs Farida:
Is there a risk for his siblings?

Dr. Laila:
That’s a very understandable concern. Some rare types of cancer can run in families, but in most cases of osteosarcoma, it doesn’t. After analysing Ali’s biopsy and if needed, doing genetic tests, we can tell you more about whether there’s any risk for his siblings.

Mrs Farida:
Ok Dr thank you

Dr. Laila:
Be sure Mrs Farida we are all here for you and Ali, and at any time if you have further questions don’t hesitate to contact us, now I’ll provide you with some leaflets to read more about the condition and I’ll summarise to you what we have said.

Most important points about osteosarcoma

1️⃣ What is Osteosarcoma?

- Osteosarcoma is the **most common type of primary bone cancer** in children and adolescents.
- It arises from **bone-forming cells (osteoblasts)**.
- Usually occurs in the **long bones** — particularly around the **knee (distal femur, proximal tibia)** and **upper arm (proximal humerus)**.

2️⃣ Who is affected?

- Most commonly seen in **teenagers and young adults** but can occur in younger children (like Ali).
- Slightly more common in boys than girls.

3️⃣ What are the symptoms?

- Persistent **bone pain**, often worsening at night or with activity.
- Local **swelling or a lump** over a bone.
- Sometimes a **fracture** (pathological fracture) can happen with minimal or no trauma because the cancer weakens the bone.
- Symptoms can be mistaken for growing pains or sports injuries at first.

4️⃣ How is it diagnosed?

- **X-ray** often shows typical changes (e.g., sunburst or Codman’s triangle appearance).
- **MRI** of the affected area to assess the extent.
- **Biopsy** (bone sample) is essential to confirm the diagnosis.
- Additional scans (**CT chest, bone scan or PET-CT**) to check if the cancer has spread (most commonly to the lungs).

5️⃣ How is it treated?

- Treatment is given in **specialist centres** by a **multidisciplinary team (MDT)**.
- Typically involves:
  - ✔ **Chemotherapy** — before and after surgery.
  - ✔ **Surgery** — to remove the tumour; may involve limb-sparing surgery or sometimes amputation.
  - ✔ Radiotherapy is rarely used but can be considered in some cases.
- Ongoing **supportive care**: pain management, physiotherapy, psychological and social support.

6️⃣ What is the outlook?

- Depends on:
  - Stage of the disease (whether it has spread).
  - Response to treatment.
  - General health of the child.
- With current treatments, many children and young people can be successfully treated and go on to live full lives.

7️⃣ What support is available?

- Specialist nurses, counsellors, social workers.
- Support groups and charities for children and families affected by cancer.
- Education support through hospital-school liaison programs.
- Genetic counselling if indicated.

DDH

Role: Dr Omar ST4 Paediatric registrar.

Background information:

The mother has a 9-month-old child. She has a family history of her sister having short limbs due to developmental dysplasia of the hip (DDH) and delayed milestones. She became worried after reading on the internet that if there is a family history of DDH, an ultrasound should be done. She requested an ultrasound when her baby was born, but she was reassured by the doctors that it was not necessary and that her baby was fine. Since then, she did not notice any problems, but at 8 months she observed that although the baby could sit, she was not willing to stand or cruise. Now at 9 months, the baby is still not cruising and only sits. When she sought medical advice, an X-ray was done, which revealed DDH in the right hip.

Task:
You have the X-ray and need to explain the findings to the mother Mrs Hanaa and address her concerns, as she fears that the delay in diagnosis might cause her child Mona to have short limb like her sister.

Dr. Omar:
good morning

Mrs Hanaa:
Doctor, I can't bear what has happened — it feels like a nightmare for me. I was so afraid of my child having the same problem of DDH as my sister. My sister has DDH, which left her with a short limb and an unstable gait, even after multiple operations that were not very successful because the diagnosis was delayed. From the beginning, I asked for an ultrasound, but they refused and reassured me. And now, after all this time, they tell me my baby has DDH.

Dr. Omar:
I'm really sorry for what happened to your sister. I know how much it's difficult for you. But let me explain everything to you. 1st Do you know what's DDH?

Mrs. Hanaa:
I know that DDH is something causing the limb to be short.

Dr. Omar:

DDH is **developmental** hip dysplasia which means it can occur with the child's growth. It was thought before that it occurs only congenital but now, they found it occur with children growth that's why it's called developmental.

Mrs. Hanaa:

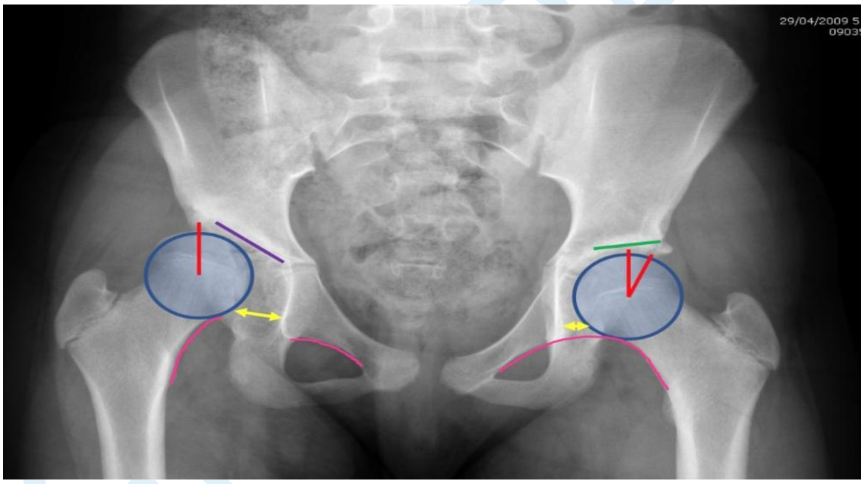
can you tell me what was found in the X- ray?

Dr. Omar:

Your baby has been diagnosed with **developmental dysplasia of the hip (DDH)** in the **right hip**.

DDH means that the hip joint hasn't developed properly — **Usually this head of thigh must be fitted inside this socket what happened with your child is that this head is slightly moved up + Angulation. Explain on X ray**

In your baby's case, the right hip is affected, and that explains why she is not yet cruising (standing and walking along furniture) at 9 months.



Mrs. Hanaa:

Why they didn't do U/S to discover it at the time of birth despite I told them that I have Family Hx, why they didn't do that, this is negligence.

Dr. Omar:

I know how you are frustrated, I know that FHx is important but the 1st degree relatives which means if the parents or any of sibling has the condition before at this time we need to do U/S for the newborn baby, but Hx in uncle or aunt doesn't mean increased incidence in the child.

Mrs. Hanaa:

But this what's happening now.

Dr. Omar:

I can understand your anger & your feeling but this can occur by chance for any child.

Mrs. Hanaa:
But what is the effect of this on my son?

Dr. Omar:
I'm sorry to tell you when this happen it decrease the blood going to thigh bone which carry the nutrients & O2 & this will limit the growth of this bone that's why we need to correct it once it's discovered. So this is now unlikely as it's discovered early & management will start immediately.

Mrs. Hanaa:
What we are going to do now?

Dr. Omar:
We will refer him to bone Dr. who will assess him & set his plan for management. Usually at this age it's corrected by surgery.

Mrs. Hanaa:
Dr I've read it can be corrected by double diaper or Pavlik harness, can we do it?

Dr. Omar:
I do appreciate your knowledge but I'm sorry to tell you this can't be done in this age. It can be used till the age of 4 ms but here operation is the ideal method for him.

Mrs. Hanaa:
What operation they will do, my sister did a lot of operation which wasn't successful at all?

Dr. Omar:
I know how it's difficult to pass through this twice but now with advance of medicine this operation has high success rate & most of the children grow out of it. This operation is called reduction operation they help the bone to fit in the socket & put the child in cast then they will follow him by multiple imaging & X-ray.

Mrs. Hanaa:
Why they didn't do U/S till now?

Dr. Omar:
U/S is not helpful now it can be done for the new born babies. now x-ray is better to be used & to follow up his condition.

Mrs. Hanaa:
Shall he grow out of this?

Dr. Omar:
Most of the children grow out of it with the proper management & follow up.

Mrs. Hanaa:
Thank you dr for this information

Most imp notes about DDH

What is DDH?

- DDH refers to a spectrum of abnormalities of the hip joint, ranging from mild acetabular dysplasia to a completely dislocated hip.
- If untreated, it can lead to pain, limp, and early osteoarthritis.

◆ Risk factors (from NICE & NHS):

☑ Family history of DDH (first-degree relative).
☑ Breech presentation (especially after 36 weeks gestation).
☑ Oligohydramnios (low amniotic fluid).
☑ Female sex (more common).
☑ First-born baby.
☑ Associated conditions (e.g., torticollis, foot deformities).

◆ Screening:

- **All newborns** should have their hips examined at birth and at the **6–8 week check**, looking for signs of instability (Ortolani & Barlow tests) and limited abduction.
- If the baby has **risk factors** (e.g., breech or family history), **ultrasound of the hips is recommended at around 6 weeks**, even if the clinical examination is normal.
- NICE recommends referral for ultrasound if:
    - Positive findings on clinical exam (instability, asymmetry).
    - Breech position after 36 weeks.
    - First-degree family history.

◆ When to refer?

- If the clinical examination is abnormal at birth or 6–8 weeks → urgent referral to orthopaedics or DDH clinic.
- If risk factors but normal clinical exam → routine referral for hip ultrasound at ~6 weeks.

◆ Treatment:

- If diagnosed early (before 6 months): usually treated with a **Pavlik harness** to keep the hips in the correct position while the joint matures.
- If diagnosed later (after 6 months): may need closed or open reduction and a hip spica cast.
- Prognosis is better when treated early — delays can lead to more complex treatment and worse outcomes.

Growing Pain

Role: Dr Mostafa ST4 Paediatric registrar.

Background information:
Ali 8 yrs old, has Pain at night, when checked him we found all his symptoms going with growing pain

Task:
You need to explain to his mother Farida the growing pain and answer all her concerns

Dr. Mostafa:
Good morning Mrs Farida can you tell me what's your main concern about Ali today?

Mrs Farida:
Dr my sone has bone aches specially at night I ask him about any trauma & he denied any trauma, now this pain happen on daily bases & awaken him from sleep.

Dr. Mostafa:
I understand your worries Mrs Farida, we did full examination for Ali to know the cause of his bone Pain & we found that all his symptoms consistent with having something called growing Pain.

Mrs Farida:
Growing Pain what is this?

Dr. Mostafa:
Growing Pain occur to children around the age of 2 - 10 years. It's a benign condition but very irritating to the children.

Mrs Farida:
Do you mean growth can cause pain?

Dr. Mostafa:
It's called growing pain but it's not caused by growing itself. They found it occur at the growth time until now no one know the reason why Some children at this age 3-4 yrs till 12 years. Can have this pain. But they found it could be due to some muscle aches during activity during the day, also extensive use of their limbs during the day, may be due to over stretch on their limbs, it can occur also in children with more compliant joint which called hypermobile

Mrs Farida:
How did you know it's not cancer without investigation?

Dr. Mostafa:
Because his symptoms is very consistent with growing pain & there is no any alarming signs of having Cancer.

His symptoms occur as wax & wane. **Its periodic pain.** Typically described as feeling throbbing, aching, or cramping. May come & go with varying intensity from mild to severe. Usually occur in **both legs** & often occur **at night** & **resolve by morning**.

Unlike other conditions growing pain **does not cause** swelling, redness or joint Stiffness.

Cancer is different. The child would have this **Pain all the time**, Sometimes they would have redness, hotness at the place & affect general wellbeing of the child, they will look pale, fatigued, not well. which is not the condition of Ali.

So please if you elicit any of this signs you need to come back to us.

Mrs Farida:
What I need to do for my child at this time?

Dr. Mostafa:
You need to do Some **massage;** apply warm compress you can give **over counter analgesics** like Paracetamol or Ibuprofen but never use aspirin.

Gentle stretching exercise before bedtime also helps + you can also use **distraction technique** make him concentrate in something, also assure him that he will improve rapidly. Also hug & kiss will help him a lot.

But if the Pain persistent, worsening & if you notice any of alarming signs which I told you before you should come for further evaluation.

Mrs Farida:
Will he grow out of it?

Dr. Mostafa:
If you followed these measures, he will improve a lot with time & usually this totally disappear by the age of 12 years.

Mrs Farida:
Does it has complications?

Dr. Mostafa:
Usually Growing Pain is benign condition it usually doesn't have any complications & it will improve with time.

Mrs Farida:
Why it occurs only to Ali?

Dr. Mostafa:
Not all children are the same, they have different levels of activity, different strength of muscles so as any condition shouldn't occur to all people.

What are growing pains?

- Growing pains are a common cause of recurrent leg pain in children, usually between ages 3–12 years.
- Despite the name, they are not actually caused by growth, but likely related to muscle fatigue or overuse.
- They are benign and self-limiting — meaning they go away on their own and are not a sign of serious disease.

🔷 Imp info about growing pain

✅ **Common in young children, especially in the evenings or at night.**
✅ **Pain is usually:**

- In both legs (bilateral).
- Felt in the calves, thighs, or behind the knees.
- Worse after active days.
- Lasts minutes to hours but resolves by morning.
  - ✅ Does not cause limping, joint swelling, redness, or stiffness.
  - ✅ Child is otherwise well — no fever, no weight loss.
  - ✅ Does not interfere with daytime activities.

🔷 **When to suspect something else?**

Red Flags **(signs that it is not just growing pains and needs further investigation):**
🚩 Pain in just one leg (unilateral).
🚩 Persistent pain that worsens over time.
🚩 Pain during the day as well as at night.
🚩 Limping or refusing to walk.
🚩 Joint swelling, redness, or tenderness.
🚩 Systemic symptoms — fever, fatigue, weight loss.

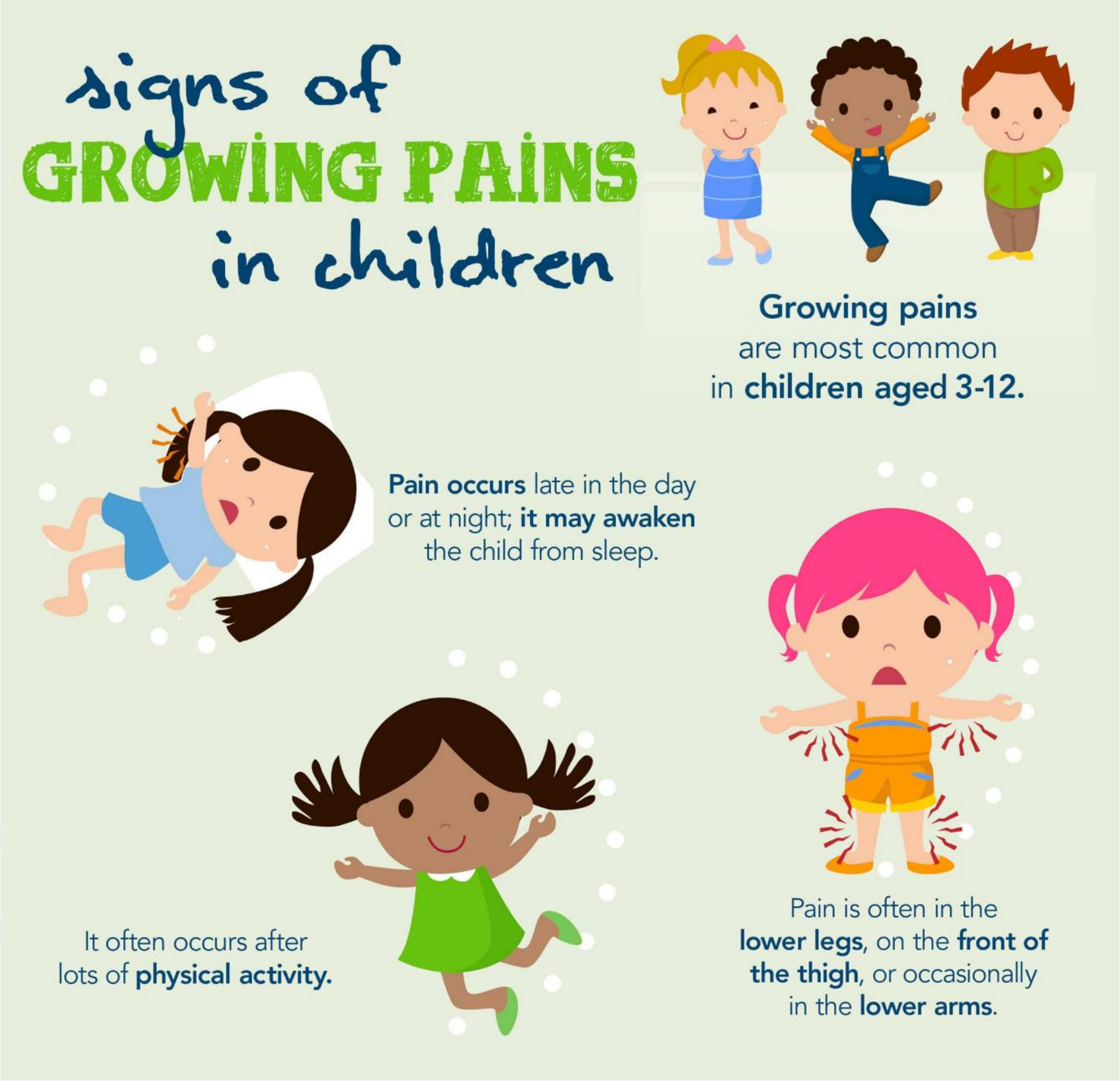
If any of these are present → consider more serious causes such as infection, juvenile idiopathic arthritis, leukaemia, bone tumours, or other orthopaedic conditions.

Management:

- Reassure parents that this is common and harmless.
- Massage the legs and use warm packs during episodes.
- Mild painkillers like paracetamol if needed.
- Encourage normal activities; no need for restrictions.

When to refer?

- If red flags are present.
- If the child has persistent or worsening symptoms.
- If the diagnosis is uncertain.


signs of GROWING PAINS in children
Growing pains are most common in children aged 3-12.
Pain occurs late in the day or at night; it may awaken the child from sleep.
It often occurs after lots of physical activity.
Pain is often in the lower legs, on the front of the thigh, or occasionally in the lower arms.

DR.

General information about drugs scenarios

Medication Errors and Near Misses

- **Near Miss vs. Complete Miss:** A "near miss" is described as a "justifiable mistake" with an explanation or justification
- while a "complete miss" is an "unjustifiable mistake" or a "drug error."
- **Examples of Justification:** A child with Wolff–Parkinson–White syndrome (WPW) being treated with a vasovagal maneuver without a detailed explanation to the mother or postponing an operation for an epileptic child during an emergency.
  The justification for these actions is noted as "concentrating to save child" and "due to emergency situation."

Handling Complaints and Mistakes

- **Apology:** If a mistake happens, be accurate in explaining what occurred. Apologize and offer reassurance, empathy, and support.
- **Explanation:** Explain if the child is okay and what will be done to ensure their well-being. Acknowledge that mistakes can occur.
- **Formal Complaint Process:** You can express a complaint to the complaint office or the Patient Advice and Liaison Service (PALS). An investigation will be conducted, and they will follow up with you.
- **Documentation:** Document everything in the patient's file to protect your rights. Raise the issue with the hospital board for a thorough investigation to understand why it happened and to prevent it from happening again.

General Management and Documentation

- **Agenda for Management:** A list of steps is provided for managing a drug-related issue:
    1. Explain the drug's side effects and what to expect.
    2. Explain what will be done to prevent future errors.
    3. Outline monitoring procedures, including drug levels.
    4. Discuss the antidote.
    5. Explain whether the drug should be held or not.
    6. Discuss alternative management strategies.

Gentamycin

Background information: Premature baby admitted to NICU with neonatal sepsis, received 3 times the dosage of Gentamycin at night shift. They discovered this in the morning and stopped the medication.

Role: Dr Adam ST3 Registrar.

Task: Discuss with Mrs Noha her daughter current condition and explain what happened.

Dr. Adam:
Hello Mrs Noha, I'm Dr Adam, one of the registrars looking after your daughter in the neonatal intensive care unit. Thank you for coming to speak with me. I know this must be a very worrying time for you, and I want to update you honestly about your daughter current condition and answer all your concerns.

Mrs. Noha:
Thank you dr, Is my baby okay right now?

Dr. Adam:
Yes, at the moment she is stable. Her heart rate, breathing and blood pressure are all fine. She's still being monitored closely as part of her treatment for neonatal sepsis.

Mrs. Noha:
Then what happened? They told me something went wrong.

Dr. Adam:
You're right. Last night, your daughter was given more than the prescribed dose of Gentamicin, which is one of the antibiotics used for premature babies with infection. She was given three times the intended dose. This was picked up during our safety checks this morning, and the medication was stopped straight away. Please accept my apology in behalf of the team.

Mrs Noha:
OMG 3 times the dose, I'll never accept something like that!

Dr Adam:
I completely understand your feelings. It is not acceptable, and I want to apologise again. We take this very seriously, and our first priority is your baby's safety.

Mrs Noha:
How can this affect my baby?

Dr Adam:
At the moment, your baby is showing no signs of harm. To be safe, we have checked her kidney function and we'll repeat it again and continue following her urine output, and we'll arrange hearing tests before she goes home.

Mrs Noha:
Will this affect her in the future?

Dr Adam:
With just one time extra dose, the chances of long-term problems are very small. Most babies do not have any lasting effects, but we are not taking any chances. That's why we'll continue monitoring her in hospital and after discharge. To reassure you the kidney affection is totally reversible in such condition.

Mrs Noha:
What will you do to prevent this from affecting her?

Dr Adam:
We have already stopped further doses until the consultant team reviews her treatment. We'll check her medication blood levels, kidney function and hearing carefully. If there are any concerns, we'll act quickly. On top of that, this incident will be formally reported in the hospital's safety system, so we can prevent this from happening again.

Mrs Noha:
Alright… but I'm still very worried.

Dr Adam:
That's completely understandable, Mrs Noha. I will keep you updated regularly, and our consultant will also meet you today to discuss everything in detail. Please know we are here to support both you and your daughter every step of the way.

Mrs Noha:
Then I'll complain and take my child out of here.

Dr Adam:
It's absolutely your right to make a complaint, I can guide you to the patient advise and liaison desk they can help you regarding that. But I also want to reassure you that your daughter is receiving the specialist care she needs here in NICU. And what happened will not be taken lightly we already informed our hospital boarding to investigate about this incident to be sure it will not happen again, and we will keep you updated about it.

Mrs Noha:
Please prepare for my child's referral, I'm not trusting your hospital any more.

Dr Adam:
If you would still prefer to transfer her, we will arrange a safe referral and handover to

another unit. Of course. I'll speak to my consultant and the neonatal network so a safe transfer can be organised. While that is being arranged, we will continue monitoring her closely

Vancomycin, Gentamycin drug levels

Background information: Hossam is a medical student, he wants to know how to monitor the drug level of gentamycin and vancomycin.

Role: Dr Ali ST3 paediatric registrar work in community hospital.
Task: explain to Hossam how to monitor the dose when to increase and when to decrease.

Dr. Ali:
Hello Hossam, how you are doing in your rotation in our unit?

Hossam:
I’ve been learning a lot here, I’m interested in neonatology. I want to be in the future neonatologist, but you know I found it difficult they measure the drug levels every now and then and change the dosage can you please tell me why using drugs is different in children? drugs like gentamycin and vancomycin Why are we so cautious about these drugs in neonates?

Dr. Ali:
Great question, Hossam. In neonates, absorption, distribution, metabolism, and excretion are all immature. So the bioavailability of the drug is different.
For example,
Oral absorption in newborns is *completely unpredictable*, which is why we give antibiotics **intravenously** rather than orally. This way we can guarantee effective blood levels.

Their kidneys are also immature, so if we don’t monitor closely, the drug can accumulate and cause toxicity.

Their liver also immature which can affect the elimination of some drugs.

Also water content extracellular more than intracellular in babies who just born that affect the distribution of certain drugs which is hydrophilic could have higher concentrations, while lipophilic medications will have lower concentration.

Weight based dosage is very important because as we said their organs are still immature and their weight is so small.

Hossam:
How do we monitor gentamicin levels in neonates?

Dr Ali:

We use both **trough** and **peak levels**. DRAW

- **Trough** = taken **1 hour before the next dose** → this shows the *lowest concentration* in the blood, telling us if the drug is clearing. If the trough is too high, it means the kidneys aren't eliminating the drug properly, so we need to extend the dosing interval (e.g., instead of every 8 hours, give it every 12 hours).
- **Peak** = measured shortly after infusion (usually 30 minutes post-dose) → this tells us if the dose is high enough to be effective. If the peak is too low, we increase the dose.

Hossam:

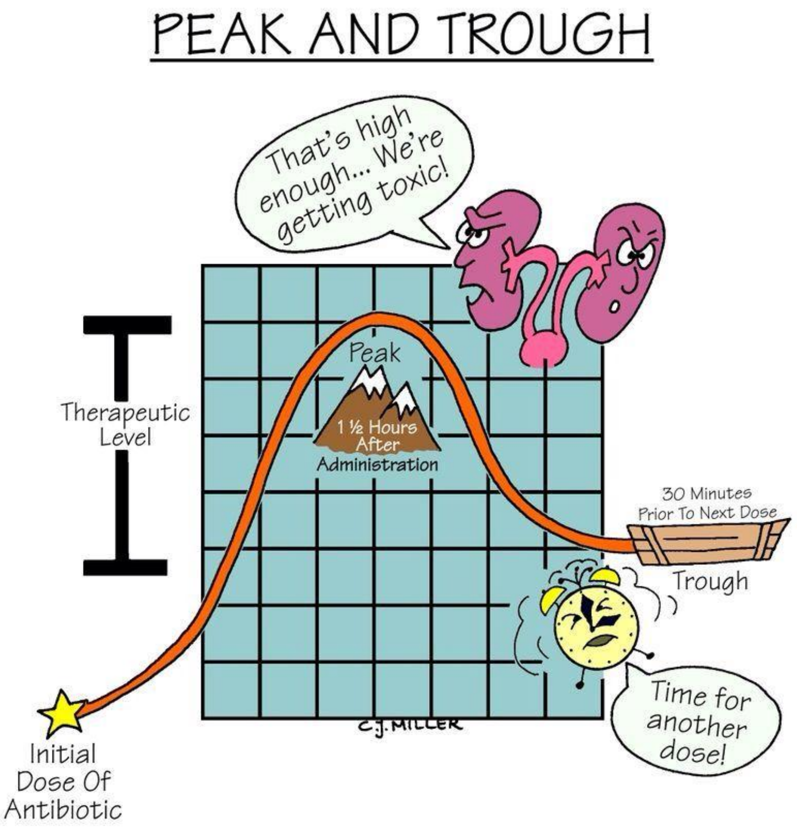
What is the value of doing both together and how to adjust the medication according to the results?

Dr Ali:

Sure. If we only had a trough, we'd know whether the drug is accumulating, but we wouldn't know if the dose is big enough to kill bacteria. If we only had a peak, we'd know the dose was effective but not whether the baby could clear it safely. **Doing both gives a full picture**:

- Peak ensures we're killing the bacteria.
- Trough ensures we're not harming the baby.

Refaat


PEAK AND TROUGH
That's high enough... We're getting toxic!
Therapeutic Level
Peak
1 ½ Hours After Administration
30 Minutes Prior To Next Dose
Trough
Time for another dose!
Initial Dose Of Antibiotic
C.J. MILLER

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Hossam:

And what infections are we targeting when we use gentamicin?

Dr Ali:
In **early-onset sepsis (EOS)**, the common bacteria are *E. coli* and *Group B Streptococcus (GBS)*. Gentamicin, combined with penicillin, usually covers these. It also works against *Listeria monocytogenes*, which can affect neonates. So, gentamicin is a very important drug in neonatal sepsis management.

Hossam:
What about vancomycin do we measure trough and peak levels?

Dr Ali:
For vancomycin, we mostly check trough levels because they best correlate with both efficacy and toxicity. Peaks are not routinely used anymore.

Hossam:
How do we monitor toxicity for these drugs?

Dr Ali:
The main risks are **nephrotoxicity** and **ototoxicity**. So we check renal function (serum creatinine, urine output) and watch for hearing problems. In neonates, toxicity can develop quickly, so we must be vigilant.

Hossam:
What else do we think about when adjusting treatment?

Dr Ali: Good point. We always consider:

- **Sensitivity of the bacteria** (hydrophilic vs hydrophobic drugs, whether the infection is in the brain where penetration matters).
- **Bactericidal vs bacteriostatic action** (gentamicin is bactericidal, so it kills bacteria rather than just weakening them).
- **Condition of the child** (if the baby is septic or has immune problems, we keep a high suspicion index and monitor closely for complications).

Dr Ali (closing): So, Hossam, remember the principles:

- Give IV antibiotics in neonates because oral absorption is unpredictable.
- Gentamicin covers GBS, *E. coli*, and *Listeria*.
- Use **trough for interval adjustment** and **peak for dose adjustment**.
- Always think about toxicity, bacterial sensitivity, and the overall condition of the baby.

That’s how we balance efficacy and safety.

Corticosteroids

Background information: Ali 6 years old was admitted to the hospital with asthma exacerbation, was receiving dexamethasone, he was mistakenly given 10 times the recommended dose, his mother Mrs Nadia was afraid from giving cortisone from the start but the doctors convinced her to accept as it's the best for Ali.

Role: Dr Hossam ST4 Registrar.
Task: Explain to Mrs Nadia the incident happened to her child Ali and answer all her concerns.

Dr Hossam:
Good morning, Mrs Nadia. I'm here today to discuss with you the updates of Adam's condition. Do you need any one to attend with you?

Mrs Nadia:
NO Dr

Dr Hossam:
As you know Ali has asthma and he is receiving cortisone, I'm sorry to tell you that something happened by mistake and this cortisone was calculated wrongly, and unintentionally he was given 10 times his dosage.

Mrs Nadia:
Oh my God… 10 times? Cortisone already is dangerous medication, I didn't want him to take it but they told me it's important so how did he received 10 times his dosage by mistake, its unaccepted at all?

Dr Hossam:
I really appreciate your feelings, you totally have the right to be upset to that extent so Please accept my apology on behalf of the team.

But I want to reassure you that Ali now is doing well and we are following him closely

Mrs Nadia:
How come you said he received 10 times his dosage what is the effect of that on him ?

Dr Hossam:
Cortisone is a natural substance secreted by our body, but we give it in management of asthma as there is inflammation and swelling in the wall of breathing tube which make it difficult for the child to breath, so it holds down this inflammation also to prevent further attacks from body defence system. But if given with high dosage like this it could have some effects it could affect levels of salts and minerals in his blood so we will do some test to

monitor it thoroughly and we know how to deal if this disturbance happened, it also can raise his blood pressure, but we are following his blood pressure closely to deal immediately if it started to elevate, it can affect his sugar level making it higher than usual and the child may feel more thirsty but we will keep following his blood sugar level. Some children may experience some mood and behavioural changes like restlessness, irritability and confusion but we know how to deal with it if happened. Some digestive troubles also may occur but we give some medications to relieve it.

Mrs Nadia:
What you will do now?

Dr Hossam:
We will monitor him in high dependency unit to follow his blood salts, his blood pressure and blood sugar level. He will be followed by a team including the kids dr, the gland dr, we will have emergency input from intensivist and nutritionist also may be involved.

Mrs Nadia:
Is there any medication that can antagonise the effect of this cortisone?

Dr Hossam:
I know how much its stressful for you Mrs Nadia but cortisone doesn't have antidote but we can manage if there is sever elevation of blood sugar level or blood pressure or disturbance of his blood minerals.

Mrs Nadia:
Can you explain to me what is the long-term effect of this?

Dr Hossam:
The good news that its mostly temporary, some children could have long term mood swing, but this is unlikely to occur from single dose.

Mrs Nadia:
What the gland doctor will do?

Dr Hossam:
He will check for long term hormonal impact which means chemical disturbance through the gland, which occur when we give high dosage from cortisone; it can supress the original gland which secrete this cortisone from the body however its unlike to occur from single dose but its important to take the gland dr input.

Mrs Nadia:
Dr I want to complain.

Dr Hossam:
I appreciate your feeling Mrs Nadia and its totally your right, I just want to tell you that we will never take this lightly we already informed our consultant and raised the concern to the

hospital boarding to investigate about the incident because mistakes do happen, but we don’t accept it to happen again. So please accept my apology in behalf of my team.

Mrs Nadia:
Who commit this mistake I want to know his name? I insist to complain.

Dr Hossam:
I know how desperately you need to know a name but actually its not single person mistake it’s a chain of orders and we need to investigate to know how this mistake happened. I’ll guide you to the patient advice and liaison service where you can complain.

Methotrexate

Background information: Ali, a known case of leukaemia receiving methotrexate subcutaneously, was mistakenly given methotrexate intrathecally during his recent dose, resulting in an incorrect administration. He is currently stable, the mother Mrs Roqaia don't know why this time her child received the dose in his back.

Role: Dr Sara ST4 Registrar.
Task: Explain to Mrs Roqaia the incident happened to Ali and answer all her concerns.

Dr. Sara:
Hello Mrs. Roqaia, I'm here today to discuss with you the condition of Ali do you want any one to attend this meeting with you?

Mrs. Roqaia:
No Dr I'm here alone. Ali has leukaemia. He was receiving methotrexate under his skin. I don't know why they gave him a needle in his back today. I wouldn't expect that. Now he is crying.

Dr. Sara:
Mrs Roqaia please accept my apology on behalf of the team, as today Ali received the needle in his back by mistake instead of it being given under his skin. This was not intended and was not in his treatment plan.

Mrs. Roqaia:
Oh no, so that needle in his back was a mistake. Oh my God, this is unacceptable, how it will affect him?

Dr. Sara:
Mrs Roqaia I can understand your feeling, but I want to assure you that we examined him thoroughly and he is stable now.

Mrs. Roqaia:
OMG, just tell me, what is the drawback of getting this medication in his back?

Dr. Sara:
Now he is stable. His breathing, HR, and BP are all okay. This medication is supposed to be given in the back in some cases. However, it was given to him by mistake. But like any medication, a normal dose is unlikely to cause any symptoms, but if given with a high dose, it can cause some dizziness, headache, and the child could have sleepiness, a coma, or a seizure this is a worst-case scenario.

What I want to tell you is once we discovered this, we announced it to our consultant and to our cancer team, so they will do everything to prevent any complication from happening.

Mrs. Roqaia:
Can this medication given in his back, go to the brain and cause a problem?

Dr. Sara:
The good news is that even if it had any effect on the brain, it is reversible in most cases because, as I told you, it is one of the routes for giving this medication.

Mrs. Roqaia:
What is your action now to help my child?

Dr. Sara:
We will stabilize the child. Keep monitoring him. Check all his HR, Temp, and BP. Check for any abnormal movement by one-to-one monitoring. Then they will give some medication to antagonize the action, which is called **leucovorin**. It is a certain substance called **vitamin** which normal people can take, just to prevent the bad action of this. If a high dosage is given, they will do what is called "spinal tapping" if needed.

Spinal Tapping: *This is a procedure used to remove all content underneath the brain and replace it with new content. We can also use this to remove medication to prevent complications. This technique is used if the child received a very high dose or has symptoms. Sometimes they use medication like CST, which can decrease its effect. We check for methotrexate levels sometimes. They will also do some lab tests like* ***LFT****,* ***RFT****,* ***FBC*** *because methotrexate can sometimes affect blood cells.*

We need to monitor the child while in the hospital and even after discharge to be sure he has no long-term effects.

Mrs. Roqaia:
What is the long-term effects of this?

Dr. Sara:
Long-term Sequelae: Sometimes they may have nerve injury, but we have now discovered this, and we will act directly and with good management. This is unlikely to happen.

Mrs. Roqaia:
I want to leave now. This centre is not good to take care of my child. Please prepare for his referral.

Dr. Sara:
We will raise what happened to the hospital board to investigate it. We know mistakes happen, but we don't accept it to happen again. By revising every step that happened and

documenting it in the child's record and raised to our consultant, we will revise every step to make sure that this will never happen again.

Mrs. Roqaia:
Will you give anything now to help save him?

Dr. Sara:
We will keep monitoring him, give some fluids to keep him hydrated. We may need to give Leucovorin: *Leucovorin antagonizes the toxic effect of methotrexate on cells.* As it can be absorbed to other areas of the body. We will keep monitoring his kidneys and liver.
we will involve the nerve dr who will explain to you in details the management plan.

Mrs. Roqaia:
Can you tell me the name of the nurse or dr who did this mistake?

Dr. Sara:
I’m sorry Mrs Roqaia I know how desperately you need to know a name but it’s not single person mistake as the process of giving medication pass through several steps. that’s why we need to investigate to know how this mistake happened, So please accept my apology in behalf of the team and make sure we are all here with you to support you and Ali till we make sure that he is fine.

Acyclovir

Background information: Adam 2 years old was admitted to the hospital with oral ulcers on oral acyclovir, he was about to discharge, but he was mistakenly given 4 times the dosage of acyclovir orally within one hour, Mrs Sara his mother was supposing he will be discharged today but because this incident he won't be discharged.
Role: Dr Ali ST3 registrar.
Task: Explain to Mrs Sara the incident happened to her child Adam, and answer all her concerns.

Dr Ali:
Good morning, Mrs Sara. I'm here today to discuss with you the updates of Adam's condition.

Mrs Sara:
Is anything happened he was supposed to discharge today. He was admitted 2 days ago because of some ulcers in his mouth he wasn't able to eat or drink any thing but thanks god now he eats well.

Dr Ali:
I want to reassure you that Adam is well right now. But I need to tell you about what happened. Last night, Adam was mistakenly given four times his usual oral dose of certain drug called acyclovir. So please accept my apology on behalf of the team.

Mrs Sara:
Oh my God… four times? How could that happen?

Dr Ali:
I'm very sorry this happened. At the moment, Adam is showing no signs of harm. He's alert, playful, and comfortable. We've already done blood tests and are monitoring his kidney function and urine output closely, because in large doses acyclovir can sometimes affect the kidneys. So far, everything is looking stable. We'll continue to monitor him very carefully before we consider discharge.

Mrs Sara:
What is the effect of that?

Dr Ali:
He was given high dose but the good thing that it was given orally so the side effects are usually less if happened it could affect: the Gut in the form of GI upset the child could feel sick or have thrown up or diarrhoea the kidney may also be affected, or the nerves as the child could experience some agitation or feel restless, or have abnormal movements. But we will take all of this seriously, first of all we will give him good fluids to help the kidney bypass this, we will monitor his alertness and if any abnormal movement in high dependency

unit by one to one observation , check any digestive troubles we will give medications for that, some times we rest the stomach for some time till this digestive troubles go away.

Mrs Sara:
What you will do now?

Dr Ali:
For the time being because this happened within 1 hour we will give him medication to decrease the absorption of this drug from the stomach to the blood this will decrease the risk of side effects it's called activated charcoal.

Mrs Sara:
Will that have long term effect on his health?

Dr Ali:
Its unlikely to have long term effects especially because we discovered it early and we are working on it, however we will keep monitoring him for any long term effects on the kidney or on the nerves.

Mrs Sara:
So dr I want to know the name of the nurse who did this mistake.

Dr Ali:
Medical work has big teamwork it's a chain of command so it's not single person mistake that's why we need to check the whole chain to know how this mistake happened. We will not take what happened lightly, we will thoroughly investigate what happened to prevent it from happening again.

Important key points for drugs

General Principles

- **Types of errors:**
  - *Near miss* = justifiable/averted error.
  - *Complete miss* = unjustifiable drug error.
- **Response to errors:**
  - Be honest, give a clear explanation, apologise, show empathy.
  - Document fully in the medical record.
  - Report via safety/incident systems.
  - Offer complaint pathway and escalate for investigation.
  - Provide reassurance and regular updates.
  - Arrange safe transfer if requested.

Management Checklist

1. Explain side effects and what to expect.
2. Describe prevention strategies to avoid recurrence.
3. Outline monitoring (labs, observations, drug levels).
4. Mention antidote/rescue therapy if available.
5. Clarify whether to continue, hold, or stop the drug.
6. Offer alternative treatment options.

Paracetamol (Acetaminophen)

- **Antidote:** N-acetylcysteine.
- **Monitoring:** Check drug level **4 hours post-ingestion**.
- **Toxic threshold:** > 550 micromol/L or > 100 mg/kg.

Methotrexate

- **Management:** Hold drug until "fill check level" completed.
- **Antidote:** Leucovorin (folinic acid).
- **Side Effects:** Oral ulcers, bone marrow suppression, hepatotoxicity, cardiotoxicity, encephalopathy.
- **Intrathecal (error):** May cause reversible changes; manage in **HDU** with leucovorin and possible **CSF tapping**.

Haloperidol

- **Side Effects:** Extrapyramidal symptoms, hypotension, prolonged QT interval, arrhythmias.
- **Antidote:** Benztropine.
- **Extra care:** If agitation severe → supportive meds; ECG monitoring recommended.

Acyclovir

- **Side Effects:** Kidney crystal formation → nephrotoxicity; CNS effects (confusion, agitation, abnormal movements).
- **Management:** Ensure hydration, monitor renal function, urine output, neurological status.

Gentamicin

- **Side Effects:**
  - Reversible nephrotoxicity.
  - Ototoxicity (hearing loss).
  - Neuromuscular blockade → weakness.
- **Monitoring:**
  - *Trough* (clearance; if high → extend interval).
  - *Peak* (efficacy; if low → increase dose).
- **Rationale:** Drug of choice for serious neonatal bacterial infections; benefits outweigh risks if levels monitored.

Vancomycin

- **Monitoring:** Mainly trough levels.
- **Risks:** Nephrotoxicity, ototoxicity.
- **Management:** Adjust dose based on trough; monitor renal function and hearing.

Corticosteroids (e.g., Dexamethasone)

- **Overdose Risks:** Electrolyte imbalance, hypertension, hyperglycaemia, mood/behavioural changes, GI upset.
- **Management:** HDU monitoring (BP, glucose, electrolytes); supportive therapy; involve multidisciplinary team.
- **Antidote:** None.
- **Long-term risk from single overdose:** Unlikely.

Aminophylline

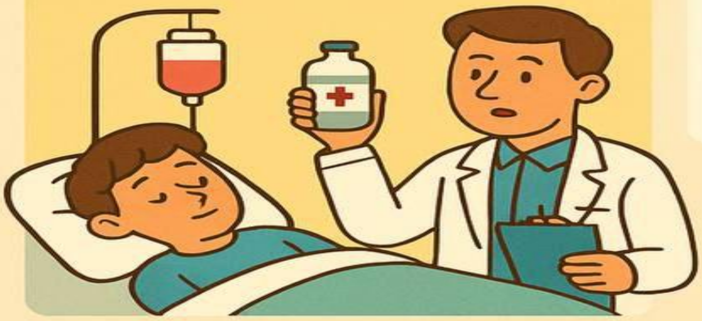
- **Use:** Relieves bronchospasm by dilating airways.
- **Overdose Risks:** Tachycardia, palpitations, agitation, irritability, raised BP, high blood sugar, arrhythmias.
- **Management:** Stop medication, monitor vitals (HR, BP, O_2, blood sugar), ECG monitoring.
- **Antidote:** None.
- **Treatment:** Correct hyperglycaemia, manage agitation, cardiac monitoring for arrhythmias.

Heavy Metal Poisoning (Iron, Lead, Arsenic)

- **Activated charcoal:** Ineffective.
- **X-ray:** Can help detect tablets.
- **No gastric lavage** for iron, volatile oils, corrosives.
- **Management:** Specific chelation therapy depending on the metal.

MEASURES AFTER A MISTAKE

SAVE THE CHILD



- Give antidote
- Blood tests & monitoring

APOLOGY

- Team responsibility
- PREVENTION

PALS

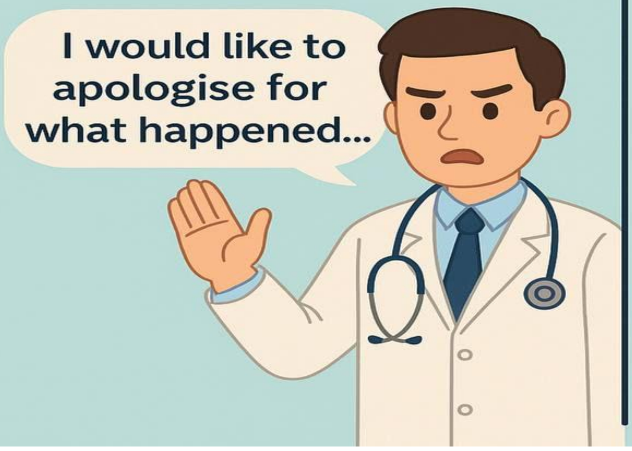
- We are very sorry this happened

PREVENT MISTAKES

- Learn why it happened
- Improve patient safety

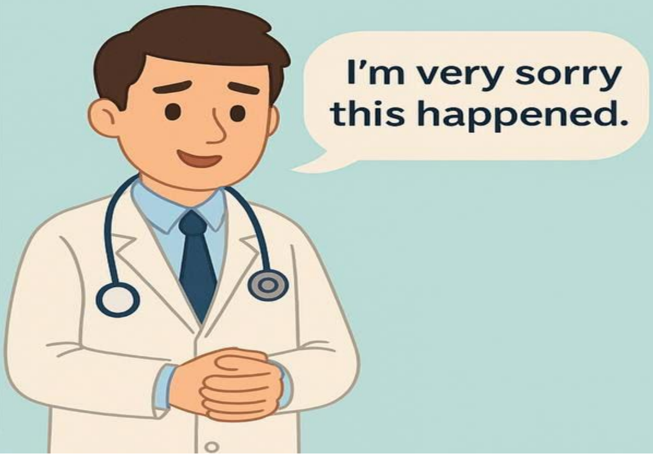
Apologise

- Formal, professional
- Takes responsibility


I would like to apologise for what happened...

Say Sorry

- Informal, personal
- Shows empathy


I'm very sorry this happened.

COLLEAGUE

Dr ya Refaat

Colleague not following guidelines

Background: you are ST 4 Supervising St1 doctor (Dr Sara) who has been managing a case of sickle cell anaemia but not following the current guidelines.

Dr sara asks for senior opinion and is worried about disciplinary action from the GMC if a mistake is made. She was not going with most recent guidelines for management of “Sickle cell Painful crisis" she always hesitant to take decision without senior opinion also She is not keen to update her knowledge.

Task: you need to explain the importance of following EBM Guidelines, managing sickle-cell crises & Provide reassurance, regarding her concerns.

Role: DR. Haitham. ST4.

DR. Haitham: Good morning, Sara, how is your rotation with us?

Sara: I'm not comfortable **they blame me for asking for senior opinion but what I must do I’m asking my Senior to give me reassurance because I'm too junior for that.**

DR. Haitham: So Sara do you find any difficulty to follow the guidelines?

Sara: Yeah. Dr I found it very rude and very difficult. What is the role of guidelines I think it’s so rigid? **why couldn't relay on senior opinion?**

DR. Haitham You’re right that senior colleagues have invaluable experience, but while **clinical experience from Seniors & Consultants Provide Practical knowledge it cannot replace the guidelines**. but combining both together ensure the best effective & up to date care for the Patient.

Sara: **why it's important to follow the guidelin**es?

DR. Haitham: that's because guidelines & EBM has a lot of benefits

- 1st It ensures the continuity of care as all are following ' the same guidelines
- It decreases the human error because any one of us can mistake in recalling the best management or the appropriate dose as example
- Also following guidelines ensure the best outcome for the patient.
- It helps you as a junior Dr to take decisions confidently.
- And it keeps you up to date It also allow the patient to understand and follows his management Plans.

Sara: **If I follow the guidelines and the patient didn't respond does this prevent me from any disciplinary action from the GMC?**

DR. Haitham: After applying the best evidence which matches the Patient values and your clinical expertise & the outcome wasn't good of course that Protect you from accountability because you followed the best evidence and the last guidelines.

Sara: **Where do guidelines come from?**

DR. Haitham: Great question.

- Guidelines are developed by national or international expert bodies (e.g., **NICE**, **RCPath**, **NHS England**, or even international groups like the **WHO**), or even by the trust it self which is local guidelines.
- They are based on:
    - **High-quality research** (randomised controlled trials, meta-analyses)
    - **Expert consensus**
    - **Real-world outcomes**

They are reviewed regularly to keep them up to date with the latest research.

Sara: **But doctor I remember one time I managed a patient with guidelines from other trust and they blamed me a lot for that I thought its ok to use it?**

DR. Haitham: That's a really valid concern, Dr. Sara — and I'm really glad you brought it up.

Let me explain this clearly and supportively:

☐ Using another Trust's guideline as a **reference** is perfectly reasonable **for learning or clinical comparison**.

☐ Or if there is **no clear local guidance**, using a reputable source from another NHS Trust (especially a teaching hospital) is often **better than guessing or relying on outdated practice**.

BUT

☐ If your **Trust has a specific local policy**, you are expected to **follow that first** — especially when it involves:

- Specific medication doses,
- Equipment use,

- Pathway timing,
- Or local referral processes.

☐ Using an external guideline **without checking** or **without discussing with seniors** can raise concerns, because:

- It may not align with local drug formularies or protocols.
- It may overlook Trust-specific safety systems.

Sara: What if a guideline doesn’t match the patient's condition?

DR. Haitham: This is a very important point.

- **Guidelines are a strong starting point**, but not every patient fits them perfectly.
- When a guideline doesn’t suit your patient’s condition or values, you should:
    - **Use other evidence** (e.g., from Cochrane, NICE, journals) to support a tailored plan.
    - **Document your reasoning clearly**.
    - **Discuss with seniors** to ensure the plan is safe and well supported.

This is still evidence-based medicine — using the **best available evidence**, while **respecting patient factors** and applying **clinical judgment**.

If everything is clear for you now would you like to discuss about the case of sickle cell that you have seen?

Sara: yeah, Dr please, I know that sometimes they give blood transfusion to patients with sickle cell, could you please tell me these indications?

DR. Haitham: of course there is certain indications like

- **Severe anaemia** (Hb drops >2 g/dL below baseline or <5–6 g/dL)
- **Acute chest syndrome**
- **Stroke prevention or after stroke**
- **Splenic sequestration**
- **Before high-risk surgeries**
- **Multi-organ failure or very severe crisis**

Always consult with haematology for planned transfusion decisions.

Sara: **I understand pain is a big issue in cases of Sickle cell crisis, but they blamed me because I didn't give opiates to the child, I was afraid he becomes dependent on it.**

DR. Haitham: You're right that pain in sickle-cell crises can be **severe and unrelenting**, especially in children. And yes — families may worry about **dependence** on opioids.

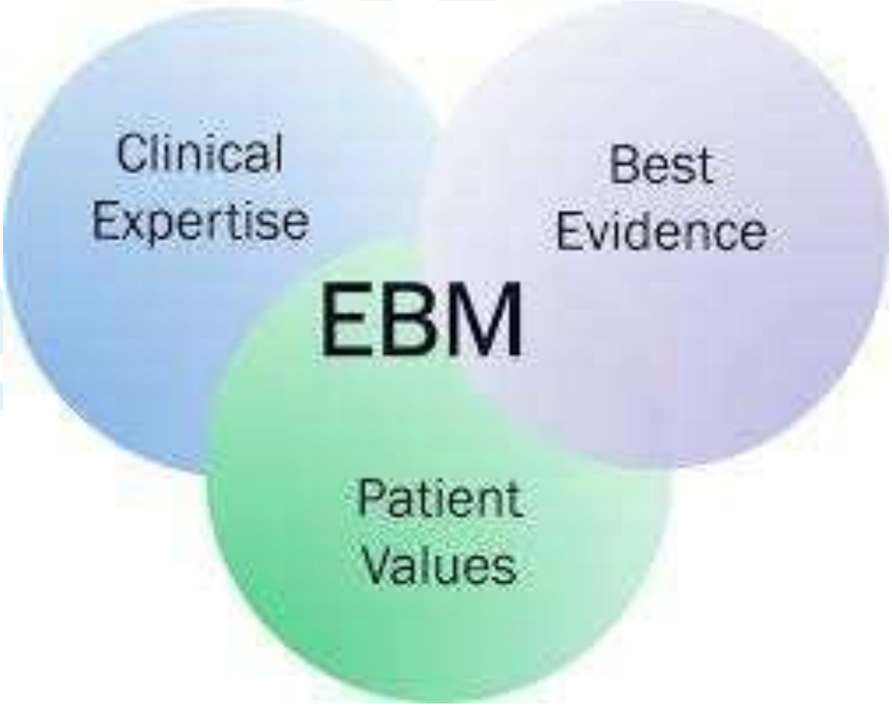
Here's how we manage that:

- **Don't underestimate the pain** — it's real, and under-treatment is harmful.
- Use **pain scales/charts** to help children express their pain.
- Aim for **pain relief within 30 minutes** of arrival — as per national guidance.
- **Start with paracetamol or ibuprofen** for mild to moderate pain (but always ask if it was already given at home).
- For **severe pain**, start opioids like **oral morphine** or **IV morphine** if needed — don't delay if it's indicated.
- **Monitor** the response and taper opioids appropriately as pain improves.

Reassure families: we use opioids **safely**, only when needed, and always review them closely. Pain control is not about addiction — it's about humane care.

Summary

Trusted website.



DR Nada Refaat

Colleague change endorsement

Background information: Dr. Nada initially assessed a pediatric patient with a skin rash and documented her findings in a handover note. After going home and reflecting on the case, she came to the conclusion that the presentation was likely Henoch-Schönlein Purpura (HSP). When the patient re-presented to the hospital, Dr. Nada updated the diagnosis but did not communicate this change to the clinical team. The revised diagnosis was subsequently identified by the duty doctor.

It is also worth noting that Dr. Nada has a known history of inconsistencies in clinical documentation and endorsement practices, which may warrant further support and review.

Role: Dr Hassan ST4 Registrar.
Task: You are ST4, discuss the event with Dr. Nada and emphasise the importance of proper handover and endorsement. Explain that it is not ethical to change her notes without informing the team. Clarify that while she can update or add to the notes if her clinical impression changes, she should not alter the original entry.

Dr Hassan:
Dr. Nada, thank you for taking a moment to speak. I wanted to have a quick conversation about the recent case involving the child who initially presented with a rash and was later diagnosed with Henoch-Schönlein Purpura.

I appreciate that you took the time to reflect on the case after your shift — it's clear that you care about your patients and take your clinical responsibilities seriously, but I just want to ask you, have you informed your colleague about your updates?

Dr Nada:
Oh No actually.

Dr Hassan:
Would you tell me why?

Dr Nada:
It was out of my shift, and we finished the handover, I thought he will read this on the notes.

Dr Hassan:
Thank you for your honesty — that’s appreciated. I understand how that might seem

reasonable at the time. However, I do want to highlight that this approach carries significant risk.

Handover is absolutely critical — not just for medico-legal protection, but also for continuity of care and patient safety. If changes or updates to a diagnosis aren't properly handed over or endorsed, important information can be missed, and this may lead to delays or even errors in patient management.

Dr Nada:
I see... I wasn't thinking about it that way.

Dr Hassan:
That's okay. We all learn through experience. But going forward, I want to be clear: it's not acceptable to go back and alter previous clinical notes without proper documentation and without informing the team.

Editing or changing a previous entry — especially after handover — can confuse the clinical picture and make it difficult to understand what actually happened at a given time. It can also raise ethical and governance concerns.

Dr Nada:
So how should I manage it if I realise something later, after the hand over?

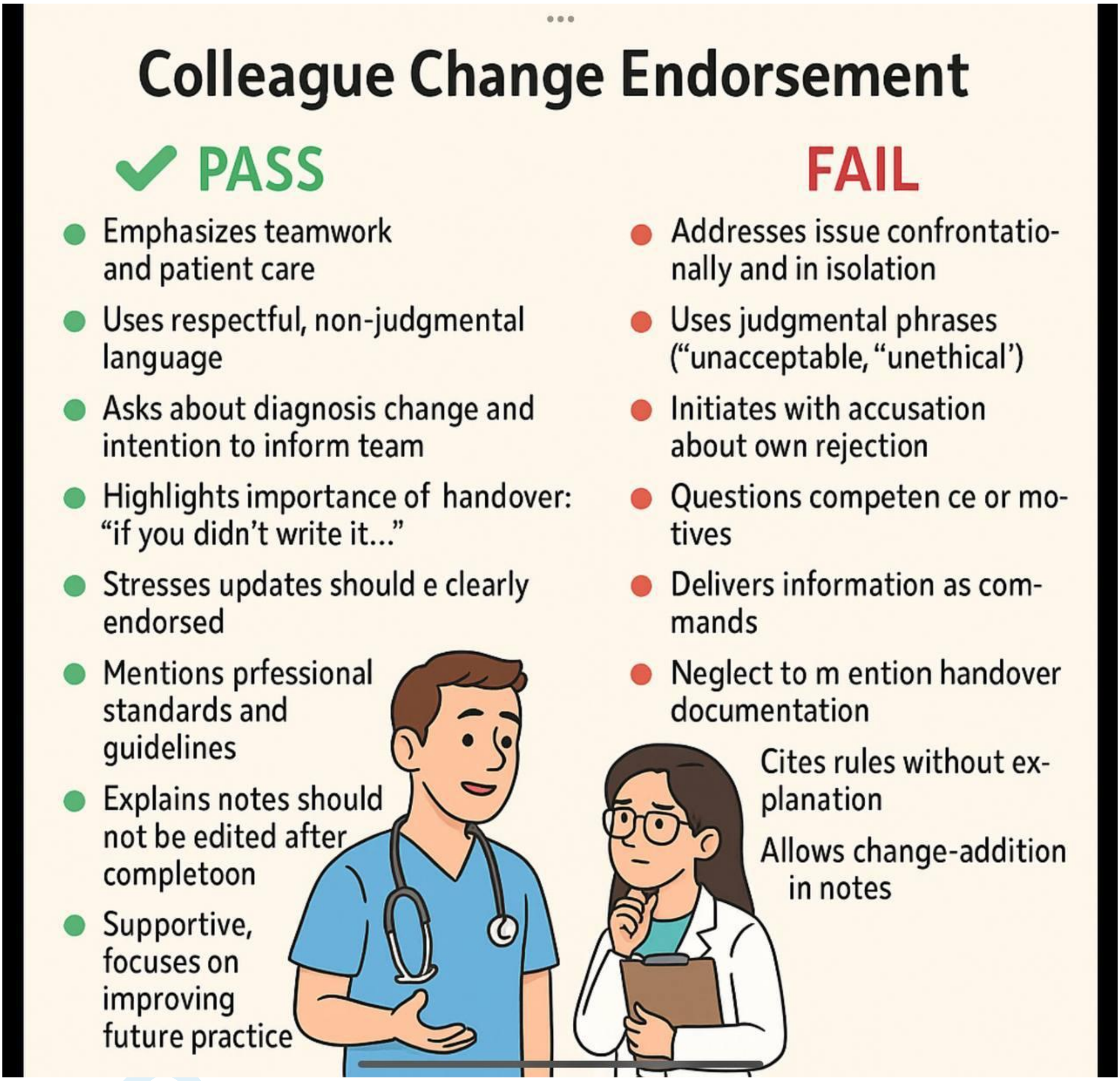
Dr Hassan:
Good question. If your clinical impression changes after your shift or you reflect and reach a different conclusion, that's perfectly valid — it happens to all of us. The correct way to handle it is:

1. **Do not edit the original entry.**
2. **Add a new note** in the system with the **current date and time**, explaining your updated impression and the **rationale** behind it.
3. Most importantly, **communicate your update** to the duty team — either in person, by phone, or through a formal endorsed message — so they are aware and can act on it if needed.

This maintains the integrity of the notes, ensures safe patient care, and protects you professionally.

Dr Nada:
That makes sense. Thank you for explaining it that way.

Dr. Hassan:
You're very welcome. You're clearly thoughtful and committed, and that's the most important thing. Just remember safe practice includes not only good clinical judgement, but also good communication and proper documentation.
And if you're ever unsure, please feel free to reach out — I'm happy to help, and so is the rest of the team. We're all learning together.



Colleague Change Endorsement

✓ PASS

- Emphasizes teamwork and patient care
- Uses respectful, non-judgmental language
- Asks about diagnosis change and intention to inform team
- Highlights importance of handover: "if you didn't write it..."
- Stresses updates should e clearly endorsed
- Mentions prfessional standards and guidelines
- Explains notes should not be edited after completoon
- Supportive, focuses on improving future practice

FAIL

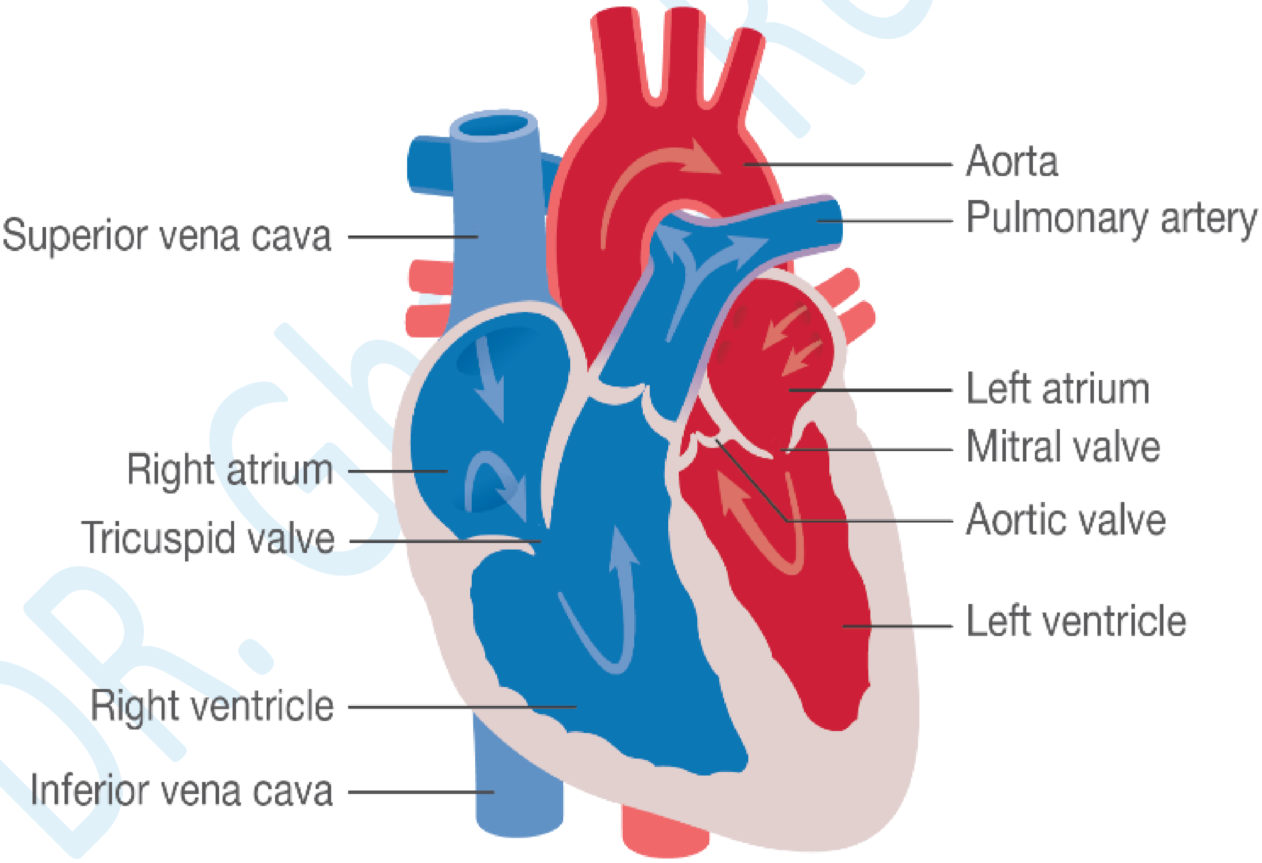
- Addresses issue confrontationally and in isolation
- Uses judgmental phrases ("unacceptable, "unethical')
- Initiates with accusation about own rejection
- Questions competence or motives
- Delivers information as commands
- Neglect to mention handover documentation

Cites rules without explanation

Allows change-addition in notes

DR.

CARDIO


Aorta
Pulmonary artery
Superior vena cava
Left atrium
Mitral valve
Right atrium
Aortic valve
Tricuspid valve
Left ventricle
Right ventricle
Inferior vena cava

DR. Gh. Refaat

CVS

How to explain heart condition to mother?

The heart is made up of four chambers: **draw**

Two atria (upper chambers): These receive blood coming into the heart.

Two ventricles (lower chambers): These pump blood out of the heart to the lungs and the rest of the body.

Right side has **blue blood**

Left side has **pink blood**

How to explain circulation? How blood travels through the heart:

1. Oxygen-poor blood (blood that doesn't have enough oxygen which is the blue blood) comes into the right atrium from the body.
2. From the right atrium, the blood flows into the right ventricle, which pumps it to the lungs. In the lungs, the blood picks up oxygen and turns red.
3. Oxygen-rich blood then returns from the lungs to the left atrium.
4. Finally, the blood moves into the left ventricle, which pumps it out to the entire body, delivering oxygen to all the organs and tissues.

CCHD

Congenital cyanosis heart disease means there is a problem in the heart's structure that affects how blood flows through it. "Congenital" means the condition is present at birth, and "cyanosis" refers to the bluish tint that may appear on the skin because of low oxygen levels in the blood.

What happens in congenital cyanosis heart disease:

In this condition, the heart or blood vessels may not be formed correctly, and as a result, the blood doesn't flow in the normal way.

This can lead to less oxygen being delivered to the body. For example:

Sometimes, the blood from the right side of the heart (which is oxygen-poor) and the left side of the heart (which should have oxygen-rich blood) can mix together, preventing the blood from going to the lungs to get oxygen.
Or could be any structural abnormalities in the heart obstructing the path of the blood going to the lung.

What is expected from the candidate Pass Criteria

1. **Congenital Cyanotic Heart Disease:**
   Clear explanation that congenital cyanotic heart disease involves heart defects present at birth that cause mixing of oxygen-poor and oxygen-rich blood, leading to cyanosis (bluish skin).
2. **Prostaglandins:**
   Explains prostaglandins help keep fetal heart structures open temporarily (like the ductus arteriosus) and may be used in treatment to maintain blood flow before surgery.
3. **Tertiary Transfer specialized center (If Needed):**
   Briefly mentions that if the baby needs specialized care, they may be transferred to a hospital with advanced heart treatment (tertiary care center).
4. **Empathy and Support:**
   Acknowledges the emotional challenge and reassures the family that with treatment, many babies do well.
5. **Hope and Prognosis:**
   Emphasizes that with proper diagnosis, such as confirming by echo, and treatment, many children can thrive and lead normal lives.
6. **Confirm by Echo:**
   Clearly states that an echocardiogram which heart scanning is needed to confirm the diagnosis and understand the heart's condition.

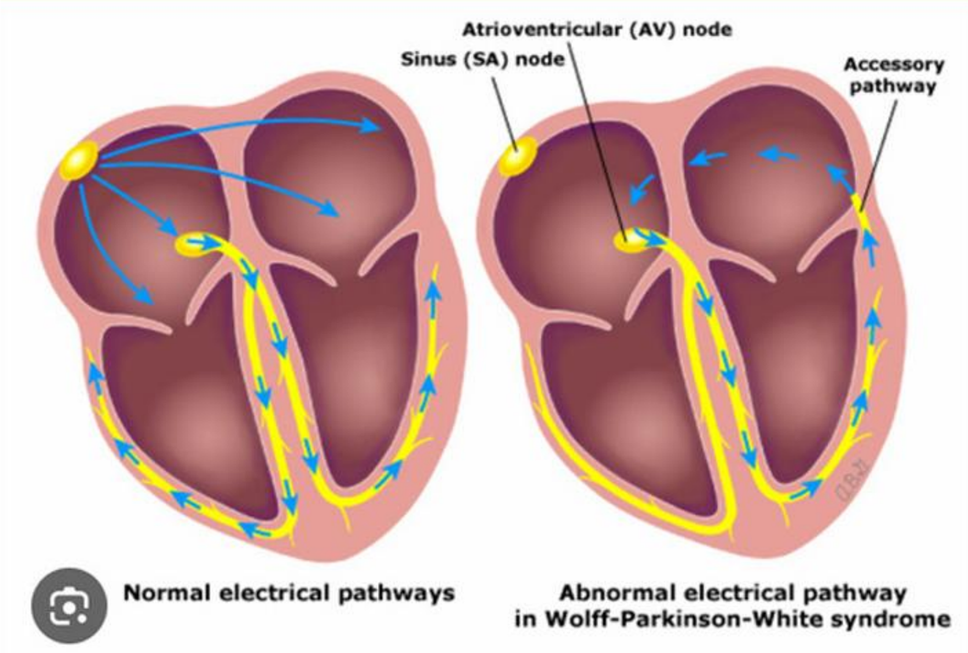
WPW v/s SVT. **DRAW**

If not specify which one put both possibilities, please.

Normally, the heart has a special natural pacemaker (natural battery) that sends electrical signals to make the heartbeat in a regular rhythm. These signals travel in one direction—from the top of the heart (atria) to the bottom (ventricles)—to help the heart pump blood properly.

In Wolff-Parkinson-White (WPW) syndrome, there's an extra, abnormal pathway in the heart called an accessory pathway. This pathway allows electrical signals to travel in the wrong direction or too quickly, bypassing the normal route.

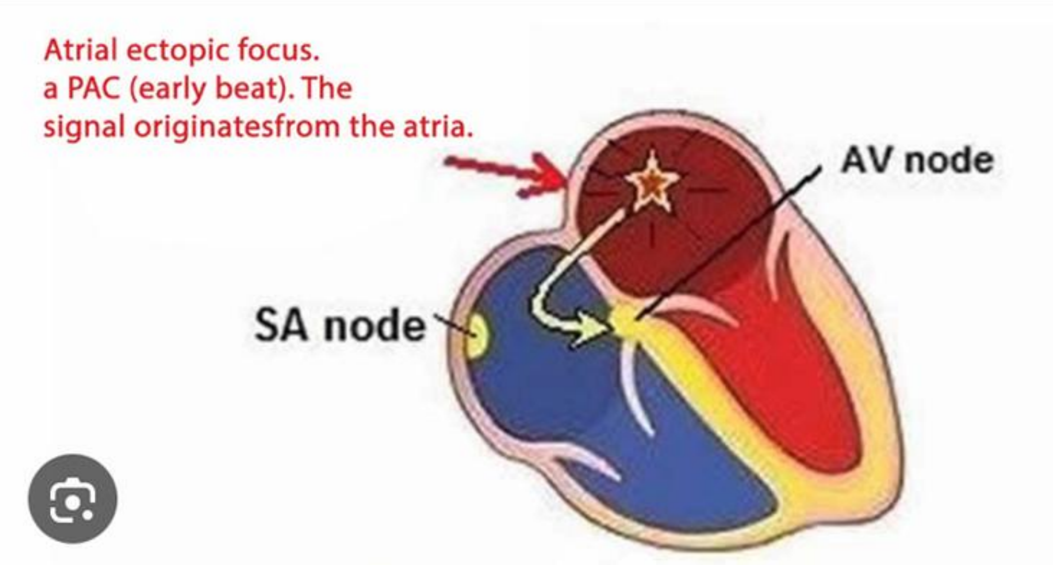
Because of this extra pathway, the heart can sometimes beat too fast, which may cause symptoms like palpitations (feeling the heart race), dizziness, or feeling unwell.


Atrioventricular (AV) node
Sinus (SA) node
Accessory pathway
Normal electrical pathways
Abnormal electrical pathway in Wolff-Parkinson-White syndrome

Supraventricular Tachycardia

Our heart has a natural pacemaker, like a little battery, that controls your heartbeat and makes sure it beats at the right speed.

But in **SVT** (Supraventricular Tachycardia), there's an ectopic pacemaker, or an extra 'battery' somewhere in the upper part of your heart. This extra battery works faster than the natural one and sends out extra electrical signals, causing your baby heart to beat too fast. It's like having a second battery that's pushing the heart to race, which can make feel like his heart is pounding fast or out of control. The baby will breathe so fast. He might look tired agitated and ill. The good news is that doctors can help slow it down and get his heart back to its normal rhythm.


Atrial ectopic focus.
a PAC (early beat). The
signal originatesfrom the atria.
AV node
SA node

Pass Criteria

1. Clear Explanation of WPW:
   Describes how WPW involves an extra pathway in the heart causing it to beat too fast, sometimes leading to symptoms like palpitations or dizziness.

2. Management Plan:
   - Red Flags: Explains that if the child has episodes of very fast heartbeats, dizziness, or fainting, they should see a doctor immediately (these are "red flags").
   - Role of Echo and ECG: Clearly states that echocardiograms (echo) and ECGs are used to diagnose WPW and monitor heart function.
   - Heart Specialist (Cardiologist):
     Advises meeting with a heart doctor to understand the condition and explore treatment options.

3. Treatment Options:
   - Radical Cure: Mentions that radiofrequency ablation can be a radical cure for WPW, especially in children of the appropriate age as determined by the heart doctor.
   - Maintenance Medication:
     Describes how medication might be used to manage symptoms and prevent episodes.

4. Empathy and Support:
   Acknowledges that hearing this diagnosis can be scary and assures the mother that the child is in good hands and that there are treatments to help.
   Offers empathy and understanding of her concerns, showing support.

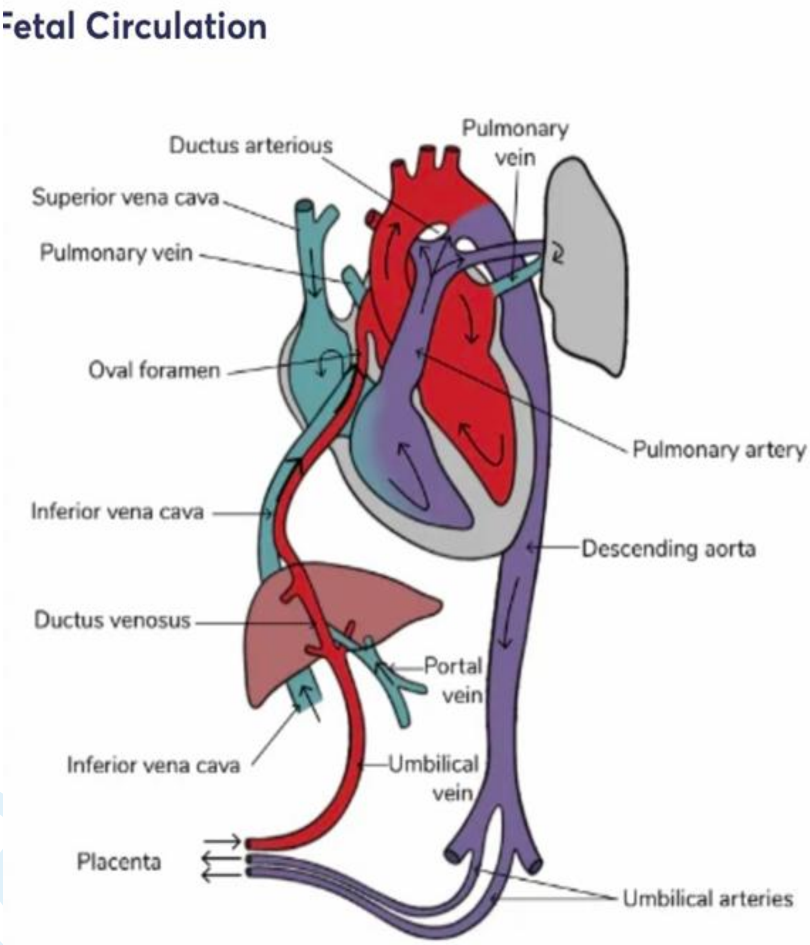
5. Family History:
   Briefly explains that WPW can sometimes run in families but assures that there’s no need to check other siblings unless there's a concern (as the condition is not always genetic).

6. Prognosis:
   Explains that with proper care and treatment, the child can live a normal, healthy life and that WPW is often manageable.

PPHTN

Pass Criteria:

Fetal Circulation Overview: pulmonary pressure is high DRAW



etal Circulation
Ductus arterious
Pulmonary vein
Superior vena cava
Pulmonary vein
Oval foramen
Pulmonary artery
Inferior vena cava
Descending aorta
Ductus venosus
Portal vein
Inferior vena cava
Umbilical vein
Placenta
Umbilical arteries

- Describes fetal circulation where oxygenated blood from the placenta bypasses the lungs via foramen oval.
- Oxygen-rich blood flows from the placenta through the umbilical vein, bypassing the lungs to supply the body.
-
- Key structures involved: Foramen oval (bypass from right to left atrium), ductus arteriosus (bypass from pulmonary artery to aorta), ductus venosus (bypass the liver).

What Happens After Birth:

- At birth, first breath when the baby cry causes lung inflation, lowering pulmonary resistance.
- Ductus arteriosus and foramen oval close, directing blood flow to the lungs for oxygenation.
- Failure to close properly which called **failure to transition = PPHN** (Persistent Pulmonary Hypertension of the Newborn), with increased.

Causes of PPHN:

- Intrauterine stress (e.g., meconium aspiration, infections, asphyxia, pneumonia, lung hypoplasia).
- Failure of ductal or shunt closure post-birth.
- Persistent high pulmonary vascular resistance could be idiopathic.
- Neonatal conditions like respiratory distress syndrome (RDS), mechanism aspiration congenital infection congenital lung disease, persistent fetal circulation.

DR. Gha

Management of PPHN:

- Oxygen therapy to improve oxygenation.
- Inhaled nitric oxide to relax pulmonary vasculature.
- Phosphodiesterase inhibitors (e.g., sildenafil) to decrease pulmonary resistance.
- ECMO (Extracorporeal Membrane Oxygenation) for severe, refractory cases.
- Ventilator support if necessary.
- Early identification and monitoring with echocardiography to assess pulmonary pressure and shunt closure.

Prognosis:

Good prognosis with early and aggressive treatment. Recovery possible within days to weeks with appropriate management.
Severe, untreated PPHN may lead to right heart failure and death.

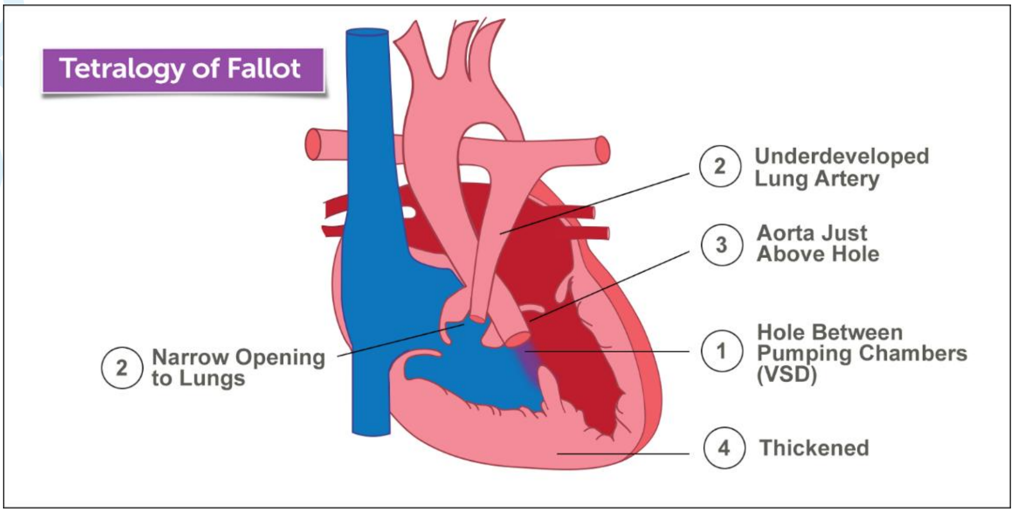
Long-term outcomes:

Most children recover with no residual problems, but some may have neurological sequelae if ischemia or brain injury occurs.

Fallot tetralogy with social worker

Role of Social Worker in TOF Case DRAW

- Support: Social workers provide emotional support to both the biological and foster parents, helping them cope with the challenges of managing a child with TOF.
- Advocacy: They help in navigating the healthcare system, ensuring the child receives the necessary medical care, including surgeries and follow up treatments.
- Resource Management: Assists in connecting the family with financial support, therapy, and other resources.
- Safety and Well-being: Ensures that the child is in a safe environment and checks the developmental and emotional needs of the child are being met.


Tetralogy of Fallot
② Underdeveloped Lung Artery
③ Aorta Just Above Hole
① Hole Between Pumping Chambers (VSD)
② Narrow Opening to Lungs
④ Thickened

Pass Criteria:

- Clear Understanding of TOF: Demonstrates an understanding of the 4 heart defects in TOF (pulmonary stenosis, VSD, overriding aorta, and right ventricular hypertrophy).

- Appropriate Role in Management: Recognizes the roles of social workers, biological parents, and foster parents in ensuring proper medical care and emotional support.

- Supportive Care: Shows how the roles of parents and caregivers contribute to the child's developmental milestones, medical compliance, and emotional well-being.

Fail Criteria:

- Incomplete Knowledge of TOF: Missing key components of the condition or not explaining its Pathophysiology and management properly.

- Failure to Address Roles Clearly: Not explaining the distinct roles of biological and foster parents or social workers in supporting the child.

- Lack of Care Coordination: Missing out on describing how healthcare and emotional support are coordinated among social workers, parents, and foster parents.

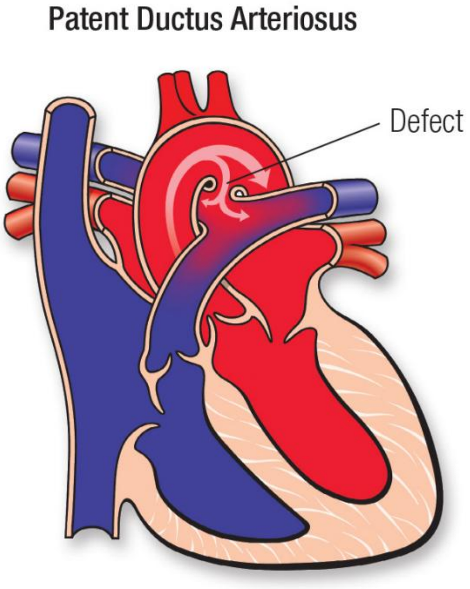
- Not explaining complication and sick days.

- Not draw or use jargons.

Patent ductus arteriosus (PDA)

The ductus arteriosus is a blood vessel that connects the pulmonary artery (main vessel supplying the blood to the lungs) to the aorta (main vessel supplying the blood to the body). This connection is present in all babies in the womb but should close shortly after birth.

In some babies, especially in those born prematurely, this bridge may remain open. This is called a patent or persistent ductus arteriosus.



What causes a baby to have a ductus arteriosus?

In the womb, the mother’s placenta provides oxygen for the baby and the ductus arteriosus allows blood to bypass the lungs.
After birth, the baby must use their lungs to take in oxygen and get rid of carbon dioxide. To achieve this, the blood flows to the lungs and the ductus arteriosus closes. The ductus arteriosus normally closes shortly after birth. However in some babies, especially premature babies, it can remain open or even reopen.

How will it be detected?

A heart murmur will be heard by the doctor examining the baby.
The team looking after the baby may have suspected a PDA as the baby had difficulty coming off the breathing machine.
The baby will then have had an echocardiogram to confirm the diagnosis.

What happens if this blood vessel stays open?

A patent ductus arteriosus increases the blood flow to the lungs. This can make it harder for the baby to breathe and come off the ventilator.

The heart also must work harder to pump blood around the body, which can lead to heart failure (which is completely reversible). Many babies with a PDA will have been kept on reduced fluid intake and given diuretic medicines to try to treat fluid overload caused by heart failure.

To try to close the connection, the baby may have been given medication (often a non-steroidal anti-inflammatory drug such as ibuprofen). Sometimes medication is unsuccessful or not appropriate, and a surgical closure might be needed.

pass /fail

Empathy support, congratulations for the baby

Explain well PDA

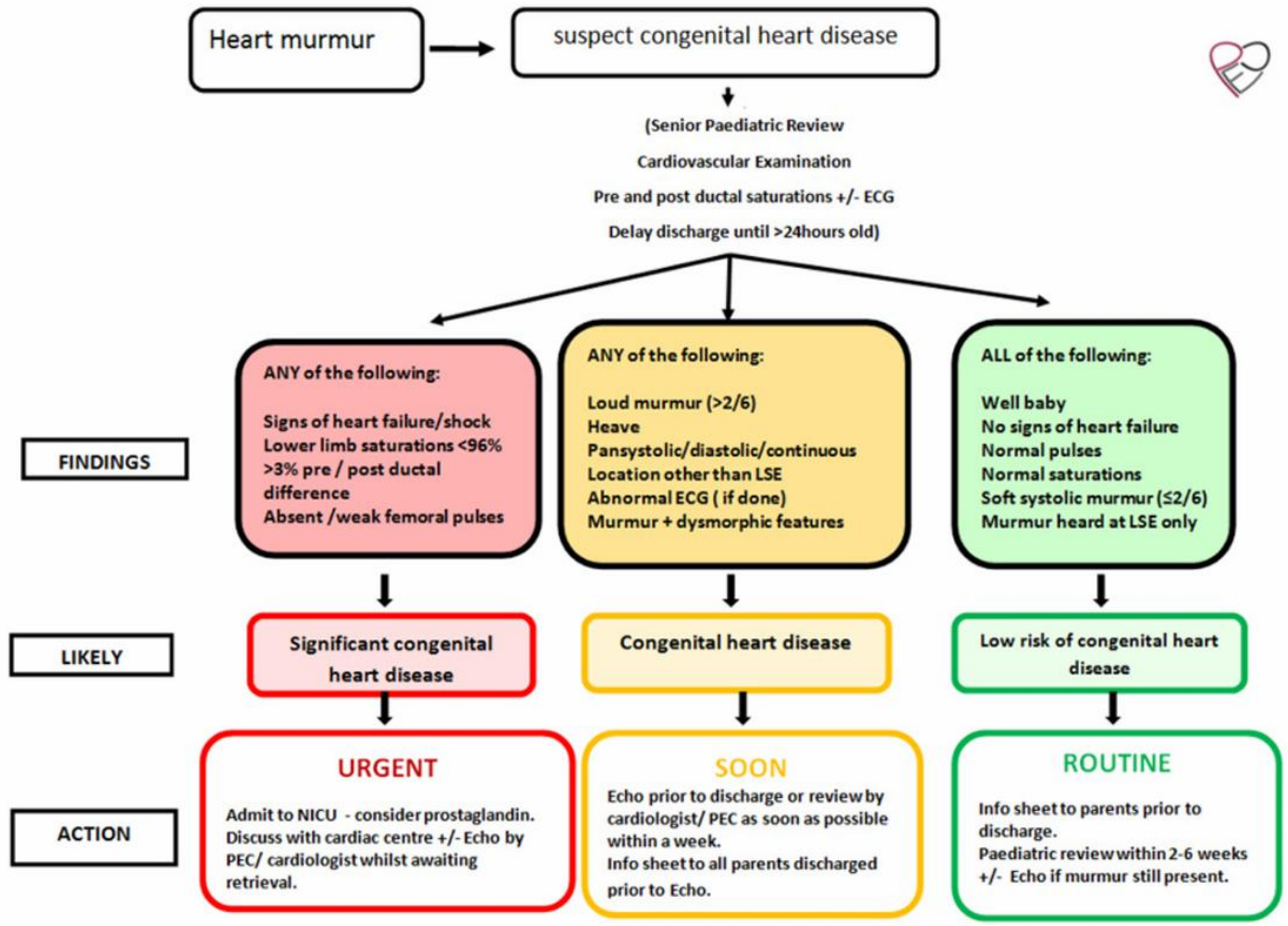
INDICATION for closure

Side EFFECT weighting benefit risk.

Explain the risk like infection, trauma, and define the way to prevent this risk

Explain the procedure (***keyhole not done in premature***).

Answer any mother concern regarding medication and indication.


Heart murmur
suspect congenital heart disease
(Senior Paediatric Review
Cardiovascular Examination
Pre and post ductal saturations +/- ECG
Delay discharge until >24hours old)
FINDINGS
ANY of the following:
Signs of heart failure/shock
Lower limb saturations <96%
>3% pre / post ductal difference
Absent /weak femoral pulses
ANY of the following:
Loud murmur (>2/6)
Heave
Pansystolic/diastolic/continuous
Location other than LSE
Abnormal ECG (if done)
Murmur + dysmorphic features
ALL of the following:
Well baby
No signs of heart failure
Normal pulses
Normal saturations
Soft systolic murmur (≤2/6)
Murmur heard at LSE only
LIKELY
Significant congenital heart disease
Congenital heart disease
Low risk of congenital heart disease
ACTION
URGENT
Admit to NICU - consider prostaglandin. Discuss with cardiac centre +/- Echo by PEC/ cardiologist whilst awaiting retrieval.
SOON
Echo prior to discharge or review by cardiologist/ PEC as soon as possible within a week.
Info sheet to all parents discharged prior to Echo.
ROUTINE
Info sheet to parents prior to discharge.
Paediatric review within 2-6 weeks +/- Echo if murmur still present.

INFORMATION FOR PARENTS

What is a heart murmur?

A heart murmur is an extra noise which is heard when the heart is listened to with a stethoscope.

Does a heart murmur mean there is heart problem?

No. Most babies with heart murmurs have completely normal hearts. These babies have what are known as "innocent" or "normal" heart murmurs. However, sometimes a heart murmur can be a sign that there is a problem with the heart like a small hole or a narrowing and this is why all babies with heart murmurs are reviewed.

How will I know if my baby has a heart problem?

Your baby will be seen in clinic within 2-6 weeks. If the murmur can still be heard and the doctor is not sure that it is an "innocent" or "normal" heart murmur then your baby will be referred to a heart specialist who may do further tests.

What should I look out for?

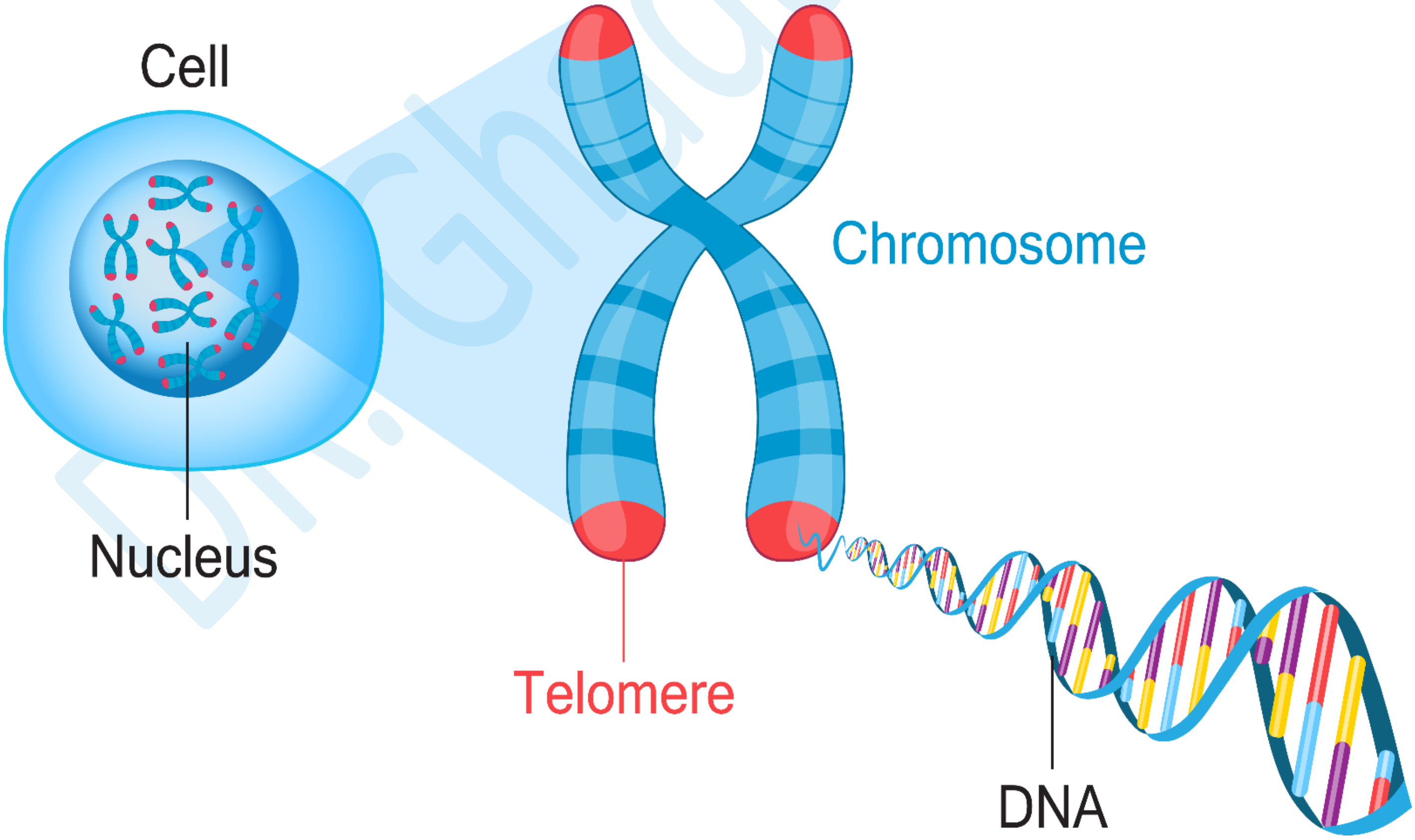
Most babies with heart murmurs remain well but if your baby becomes unwell they should be seen urgently by a doctor. Signs to look out for include: breathing difficulties; breathless or sweaty when feeding; poor feeding; blue colour of skin and lips or mottled skin.

What should I do if my baby becomes unwell?

You should seek urgent medical advice. Phone _________________________________. Explain that your baby has a heart murmur and has become unwell.

Genetics communication

By Dr Ghada Refaat


Cell
Nucleus
Chromosome
Telomere
DNA

Genetics introduction

Chromosomes

We have billions of cells in our body. These cells contain gene-carrying sticks called **chromosomes**.
Each human cell contains **46 chromosomes**, arranged into **23 pairs**, and each pair is numbered.
Out of these, **2 chromosomes determine the gender**, while the other chromosomes carry the body’s characteristics.

Down Syndrome

In Down syndrome, there is an **extra stick (chromosome) at pair number 21**.

How does this happen?
There are several ways:

- Parents may carry a faulty gene even before conception.
- Or it can happen **by chance after conception** (new mutation).

Can it recur?
It depends on **how the extra chromosome happened**, because there are **3 ways it can occur**, each with its own pattern and risk of recurrence.
To know this, we need to test the genes of the child, the mother, and the father.

Turner Syndrome

We have 23 pairs of chromosomes:

- 22 pairs determine our characteristics.
- 1 pair determines the gender (boy or girl).

Girls usually have **two identical X chromosomes (XX)**.
Boys have one X and one Y chromosome (XY).

In **Turner syndrome**, something goes wrong with the gender chromosomes:

- The girl may **miss one X chromosome**, or
- She may carry an X that does not work properly.

This happens **by chance during the creation of the baby**, not because of inheritance.
Girls with Turner syndrome are usually infertile. The risk of recurrence is the same as in the general population.

Autosomal Recessive (AR) & Autosomal Dominant (AD)

AR (Autosomal Recessive)

- Each characteristic is expressed on a **pair of chromosomes**.
- To have the condition, a child needs to inherit **one faulty gene from each parent** (2 faulty genes in total).
- If even one gene is healthy, it compensates for the faulty one.
- Risk of inheritance: **1 in 4 in each pregnancy**.

AD (Autosomal Dominant)

- Only **one faulty gene** (from either parent) is enough to cause the condition.

X-linked Conditions

X-linked Recessive

- Out of 23 pairs of chromosomes, 22 carry characteristics, and 1 pair determines gender.
- The faulty gene is carried on the **X chromosome**.
- In girls (XX), both X chromosomes would need to carry the faulty gene to express the condition — rare.
- In boys (XY), if the single X has the faulty gene, he will have the condition.

So:

- Boys inherit the condition from their mother, with a **1 in 2 chance in each pregnancy**.
- Girls may also carry the gene but often show no symptoms because their other X compensates.

X-linked Dominant

- Only **one faulty gene on the X chromosome** is enough to cause the condition, whether in boys or girls.
- If the mother carries it, the risk of passing it to each child is **1 in 2 per pregnancy**.
- If the **father** carries the faulty gene, **all his daughters will be affected**, while **his sons will be normal**, because he passes his X chromosome to daughters and Y to sons.

Karyotyping (for medical students)

This is a test where we arrange and look at chromosomes under a microscope.
We use karyotyping in conditions like **Turner syndrome** and **Down syndrome**.

In conditions like **DiGeorge syndrome**, the problem is smaller (micro) and not visible under a microscope, so we use special tests:

- FISH (Fluorescence in situ hybridization)
- Microarray analysis

Genetic Counseling

- See a **genetic doctor** to understand the risk and how to prevent the condition in future children.
- No one is responsible for their genes — it is nobody's fault.

How to Talk about Features

- Don't say "dysmorphic features". Instead, say: "some features of concern" or "unique features" — for example:
    - Unique shape of the eyes
    - Tongue may appear larger or protruded
    - Distinctive facial features easily recognized by a professional doctor
- If unsure, refer to a genetic doctor for confirmation through testing.

Down syndrome with alopecia

Role: You are STU talk to Layla mother of Alaa.

Background information:

Alaa is a 10-year-old child with Down syndrome (non-disjunction type), diagnosed at birth.
At 3 months of age, he was diagnosed with an atrioventricular (AV) canal defect.
He underwent pulmonary artery banding at 4 months, followed by total surgical correction at 1.5 years.
He has mild intellectual delay and is currently not enrolled in school, as his father believes he is not capable of attending a regular school.
At 3 years of age, he was referred to an endocrinologist and diagnosed with hypothyroidism, for which he was started on L-thyroxine.
At the age of 4 years, he developed extensive frontal and temporal alopecia. He was treated by a dermatologist, with some improvement noted.
He is currently growing along the 3rd percentile for height and the 50th percentile for weight.

Task: talk to Mrs Layla explains the condition of Alaa and answer all her concerns.

Dr. Mohey:
Hi Mrs. Layla, I'm here today to discuss Alaa's condition with you. I understand you have some concerns you'd like to talk about?

Mrs. Layla:
Yes, doctor. Actually, I have many concerns. As you know, Alaa has Down syndrome, diagnosed since birth. We've faced many challenges because of it. But now he's developed areas of hair loss on his head. We went to a dermatologist who prescribed some medication, but so far there's been no improvement. Can you tell me why my son has this condition?

Dr. Mohey:
I'm sorry to hear that, Mrs. Layla. I know this can be very upsetting for both you and Alaa. Alopecia — or hair loss — can happen when the defence system, instead of fighting infections, mistakenly attacks the hair-producing cells in the scalp, called follicles.

It could also be related to some chemicals, vitamin deficiencies, poor nutrition, or even his thyroid problem. Other conditions sometimes associated with Down syndrome can also play a role.

The course of alopecia varies — improvement can take time because when the defence system is involved, it often needs a longer treatment period.

But If the hair loss is due to his thyroid problem or another correctable condition, then treating that underlying problem can help improve the alopecia too.

Mrs. Layla:
But doctor, he's not improving. I don't see any progress.

Dr. Mohey:
I understand how frustrating this is, Mrs. Layla. But let me reassure you — most patients eventually recover from alopecia, but it does take time. He will need ongoing, integrated management, but the chances are good that he will grow out of it.

Mrs. Layla:
Doctor, what is the risk of having another child with Down syndrome?

Dr. Mohey:
That's an important question. It depends on the type of Down syndrome. In Alaa's case, he has the most common type — called **non-disjunction**. This happens when, at the time of conception, the two chromosome 21 "sticks" in the mother's egg cell failed to separate properly and both went into one egg. Then, with the father's chromosome, the baby ends up with **three copies of chromosome 21**.

Unfortunately, mothers who've had a baby with this type do have a slightly higher risk of it happening again — and that risk increases slightly with maternal age. But it does not mean all future children will have Down syndrome. That's why we recommend seeing a genetic doctor who can explain the details and guide you further.

Mrs. Layla:
But doctor, I don't understand — both I and Alaa's father are normal. We have normal genes. Why did this happen?

Dr. Mohey:
That's a very common and understandable question. Down syndrome happens because of an extra copy of chromosome 21 during the formation of the egg or sperm — it's not caused by your own genes, and it can happen by chance, even to healthy parents with healthy genes. It's not anyone's fault.

Mrs. Layla:
Doctor, what should I do now about his heart condition? Is it already fixed, or should I still be concerned?

Dr. Mohey:
I'm glad to hear his heart defect was surgically corrected — that's a big achievement. His heart is now functioning well after surgery. But we still need to follow the recommendations: lifestyle adjustments, any medications, and notifying the heart doctor before any future procedures or surgeries, because that information might be important.

Mrs. Layla:
How long does he need to keep taking L-thyroxine for his thyroid?

Dr. Mohey:
In most cases, thyroid hormone treatment is lifelong. But regular follow-up with the doctor is important to monitor his levels and adjust the dose as needed.

Mrs. Layla:
Do you have any other advice for me or his father?

Dr. Mohey:
Yes — a very important point is about his education. How he is doing?

Mrs. Layla:
He is not going to school because his father thought he couldn't manage in a regular school.

Dr. Mohey:
But many children with Down syndrome can attend mainstream schools if they have the right support and accommodations.

It's essential to work with a specialized educator to create an **Individualized Education Program (IEP)** tailored to his needs. Some children may need special schools depending on the evaluation, but others do well in mainstream settings with an IEP team's support.

Also, children with Down syndrome — whether they have obvious problems or not — need regular check-ups and screening for other possible issues, like problem in the bowel called **celiac disease**, and also monitoring their growth and development. Please make sure to attend all his appointments with the healthcare team.

And always prioritize his education, emotional well-being, and social development.

Mrs. Layla:
is their any support advocacy in the UK to support people of down syndrome as I'm overwhelmed by his condition?

Dr. Mohey:
I know how it's difficult for you to pass through all of this, in Uk there is many advocacies and organizations radicated to support the families with down syndrome children. Also there is a lot of support groups that can help you to overcome these difficulties. I'll give you some trusted websites you can read more about down syndrome and the names of the down syndrome support advocacies.

Mrs. Layla:
Thank you Dr for this information.

Turner syndrome

Background information: Mrs Ola mother of Hana concerned about her length and the appearance of her neck, she went to the GP who did karyotyping for Hana which revieled her diagnosis with Turner syndrome.

Task: inform Mrs Ola about the karyotyping results and answer all her concerns

Role: Dr Aliaa pediatric ST4 at the outpatient clinic

Dr. Aliaa:
Hello Mrs. Ola, thank you for bringing Hana today. How can I help you?

Mrs. Ola:
Hello Doctor… I am worried about my daughter. She is very short and also I am concerned about the shape of her neck. I went to the GP. He told me he would do some gene test, but I didn't know the results until now.

Dr. Aliaa:
I understand, you did the right thing coming here. After checking her gene test, I'm sorry to tell you that Hana has a condition called **Turner Syndrome**. Have you heard about it before?

Mrs. Ola:
No Doctor… what is this?

Dr. Aliaa:
It is not an inherited condition. It is a problem that happens during the baby's development. Let me explain

Normally, we all have 46 chromosomes, arranged in 23 pairs.
44 of them carry our physical and personal features, and 2 decide our sex.
Males have one X and one Y, and females have two X.
But in Hana's case, **one of the X chromosomes is missing or not working properly.**

Mrs. Ola:
So, Doctor, does that mean she was born with this?

Dr. Aliaa:
Yes Mrs. Ola, she was born with this.

Mrs. Ola:
But how come no one discovered it until now? We went to many doctors before.

Dr. Aliaa:
I understand how frustrated you feel, and you are right. But sometimes the signs of Turner Syndrome are not very clear early on.
The most noticeable features are usually **short stature** and sometimes **heart problems**.

Mrs. Ola:
Doctor, how will this condition affect her?

Dr. Aliaa:
I'm sorry to tell you, Most girls with Turner Syndrome are shorter than expected, and they may have problems developing female characteristics — like having periods, breast development, and the ability to conceive.
They may also have other features, such as a wide neck, like Hana.

Mrs. Ola:
What about the long-term? How can this affect her health?

Dr. Aliaa:
That's a good question. Turner Syndrome can affect her both outside and inside.
It may affect:

- her heart
- her kidneys
- her hearing
- her thyroid gland

But not all girls have all of these problems — some have only a few.
So we will check her for all these possible conditions and start management early.

Mrs. Ola:
Doctor, how will she be treated?

Dr. Aliaa:
ite very important question Mrs Ola, but I'm afraid Turner Syndrome is a lifelong condition, and unfortunately, there is no cure.
But we can help improve her health and life.

We will involve the hormone doctor. Who is called endocrinologist .He may give her:

- **Growth hormone** — to help her grow taller.
- **Estrogen (female hormone)** — to help her develop female characteristics, like breasts and periods.

We will also treat any other conditions she may have.
And don't worry — you will not be alone. The Turner Syndrome team will support you at every step.

Mrs. Ola:
Doctor… will she be able to have children later?

Dr. Aliaa:
Most women with Turner Syndrome cannot have children naturally because of something called **ovarian failure** — the ovaries do not produce eggs properly.
But there are options in the future — like **egg donation**, **IVF (in vitro fertilization)**, or even **adoption**.

Mrs. Ola:
Will this affect her ability to drive?

Dr. Aliaa:
Some girls with Turner Syndrome have **vision problems (visuo-spatial problems)**, which can affect driving.
But it depends on each girl. We will check her vision when the time comes. But of course she need to inform DVLA about her condition when she tries to apply for the licence and they will guide her throughout the process

Mrs. Ola:
And what about her education?

Dr. Aliaa:
Most girls with Turner Syndrome have normal intelligence.
But some may struggle with math, geometry, or maps.
We can arrange an individual educational plan to support her at school.

Mrs. Ola:
Doctor… I am also worried about her neck.

Dr. Aliaa:
I understand your concern. The wide or webbed neck is one of the features of Turner Syndrome.
We can refer you to a cosmetic surgeon who can help improve its appearance if you wish.

Dr. Aliaa:
Mrs. Ola, I know this is a lot to take in. But we are here to support you and Hana.
We will make a plan together to help her grow, develop, and live her life in the best way possible. If you like I can give you trusted websites to read more about her condition and you will find a lot of support groups for girls with Turner, it might help you.

Now I can summarize what we discussed today to make it easy for you if you don't mind.

Prader Willi Syndrome

Background information:
Ali is a medical student have seen child who is overweight. When he asked he was told he has Prader Willi, he wants to know more about it.

Task: explain to Ali what Prader Willi is and answer all his concerns.

Role: Dr Hassan ST4 paediatric registrar

Ali:
Dr. Hassan, I just wondered about this child who is overweight. They told me he has Prader Willi, actually it's my 1st time to hear about Prader Willi. Can you tell me what it is?

Dr. Hassan:
Yeah, Ali, it's great observation from you. Prader Willi is a syndrome that occur due to genetic problem.

Ali:
Yeah, Dr I read that it's inherited by something called Parental Disomy or something like this. but I didn't understand it.

Dr. Hassan:
Let me explain. Normally, each of our cells contains pairs of chromosomes—one from the mother and one from the father. In Prader-Willi syndrome, there's an issue with chromosome 15. Specifically, the genes that should come from the **father's side** at a certain point called the "Prader-Willi region" are either **missing** or **not working properly**. This is related to a process called **genomic imprinting**.

Ali:
Genomic imprinting? What does that mean?

Dr. Hassan:
Genomic imprinting is when the expression of a gene depends on **which parent** it came from. For some genes, it matters whether it came from the mother or the father. In the case of Prader-Willi, certain genes on **chromosome 15** are **only active when inherited from the father**. If those paternal genes are missing, silenced, or not working correctly, the child develops Prader-Willi syndrome.

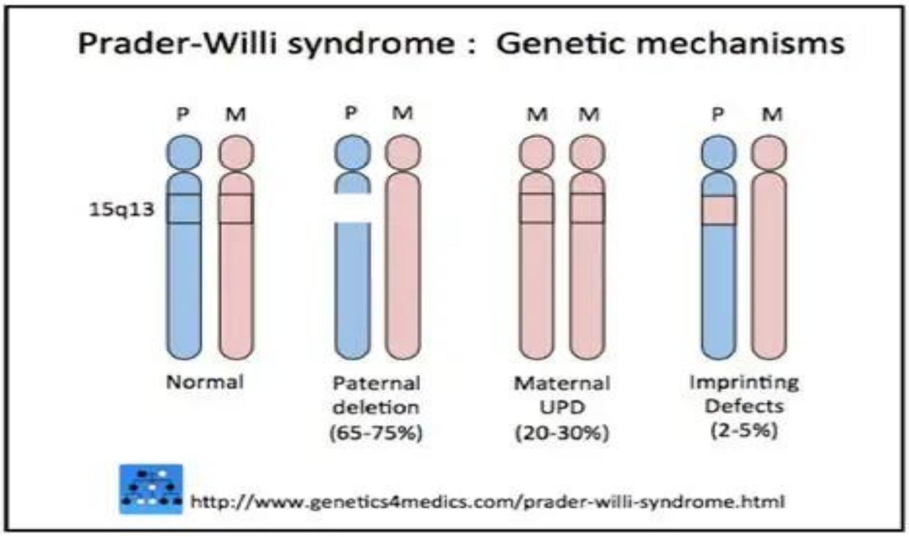
Ali:
So there's another possibility for inheritance called **Uniparental Disomy** what is that?

Dr. Hassan:
Yes, exactly! That's one mechanism. In that case, the child has **two maternal copies** and **no**

paternal copy, so the necessary genes are not expressed. Another possible cause is a **microdeletion**, where a portion of the **paternal chromosome 15** is missing at the Prader-Willi region.

Ali:
What's the recurrence risk for this condition?

Dr. Hassan:
That depends on the underlying cause. If it's due to a genetic imprinting defect, it may behave like **autosomal dominant inheritance**, with a **50% chance** in each pregnancy. However, in most cases—like **uniparental disomy** or **deletions**—it happens as a **new mutation**, meaning the recurrence risk is **very low**, similar to the general population. That's why **genetic counseling** is very important for parents who have a child with Prader-Willi—to assess future risks properly.


Prader-Willi syndrome : Genetic mechanisms
P
M
15q13
Normal
P
M
Paternal deletion (65-75%)
M
M
Maternal UPD (20-30%)
P
M
Imprinting Defects (2-5%)

http://www.genetics4medics.com/prader-willi-syndrome.html

Ali:
What are the symptoms of this syndrome? They told me it has some characteristic features.

Dr. Hassan:
Yes. In **infancy**, babies with Prader-Willi often have **low muscle tone (hypotonia)**, which leads to **poor sucking and feeding difficulties**, causing **poor weight gain**. They may also have **developmental delays**, such as delayed sitting or walking.

Later, in **early childhood**, they develop **excessive hunger (hyperphagia)**, which often leads to **obesity**. If not managed properly, this can lead to complications like **type 2 diabetes**, **sleep problems**, **cardiovascular issues**, and **respiratory difficulties**. They may also show **behavioral problems** such as **obsessive-compulsive traits**, **temper tantrums**, or **ADHD**.

Physically, they often have:

- **Short stature**
- **Underdeveloped sexual organs (hypogonadism)**, such as **cryptorchidism** in boys
- **Small hands and feet**

- **Distinct facial features** like **almond-shaped eyes**, a **thin upper lip**, and a **narrow forehead**

Ali:
How is it treated?

Dr. Hassan:
Unfortunately, there is **no cure** for Prader-Willi, but management focuses on **early intervention**.

- **Physical and occupational therapy** can help with developmental delays.
- A **strictly controlled diet** is critical to prevent obesity.
- **Behavioral therapy** and **support groups** can improve quality of life.
- **Growth hormone therapy** is also commonly used—it helps with muscle tone, improves growth, and enhances body composition.

Ali:
How is it diagnosed? Can we use karyotyping?

Dr. Hassan:
Karyotyping usually doesn't detect Prader-Willi, as it's a more subtle genetic issue. Diagnosis starts with **clinical suspicion**, based on:

- **Neonatal hypotonia**
- **Feeding problems** in infancy
- **Rapid weight gain** between 1–6 years
- **Characteristic facial features**
- **Developmental delay**
- **Hypogonadism**
- **Behavioral problems**
- **Short stature**, **sleep apnea**, **small hands/feet**, and **hypopigmentation**

A diagnostic **scoring system** is often used:

- In **infants**, 5 points (with at least 4 major criteria)
- In **children**, 8 points (with at least 5 major criteria)

Definitive diagnosis is done through **molecular genetic tests**, such as:

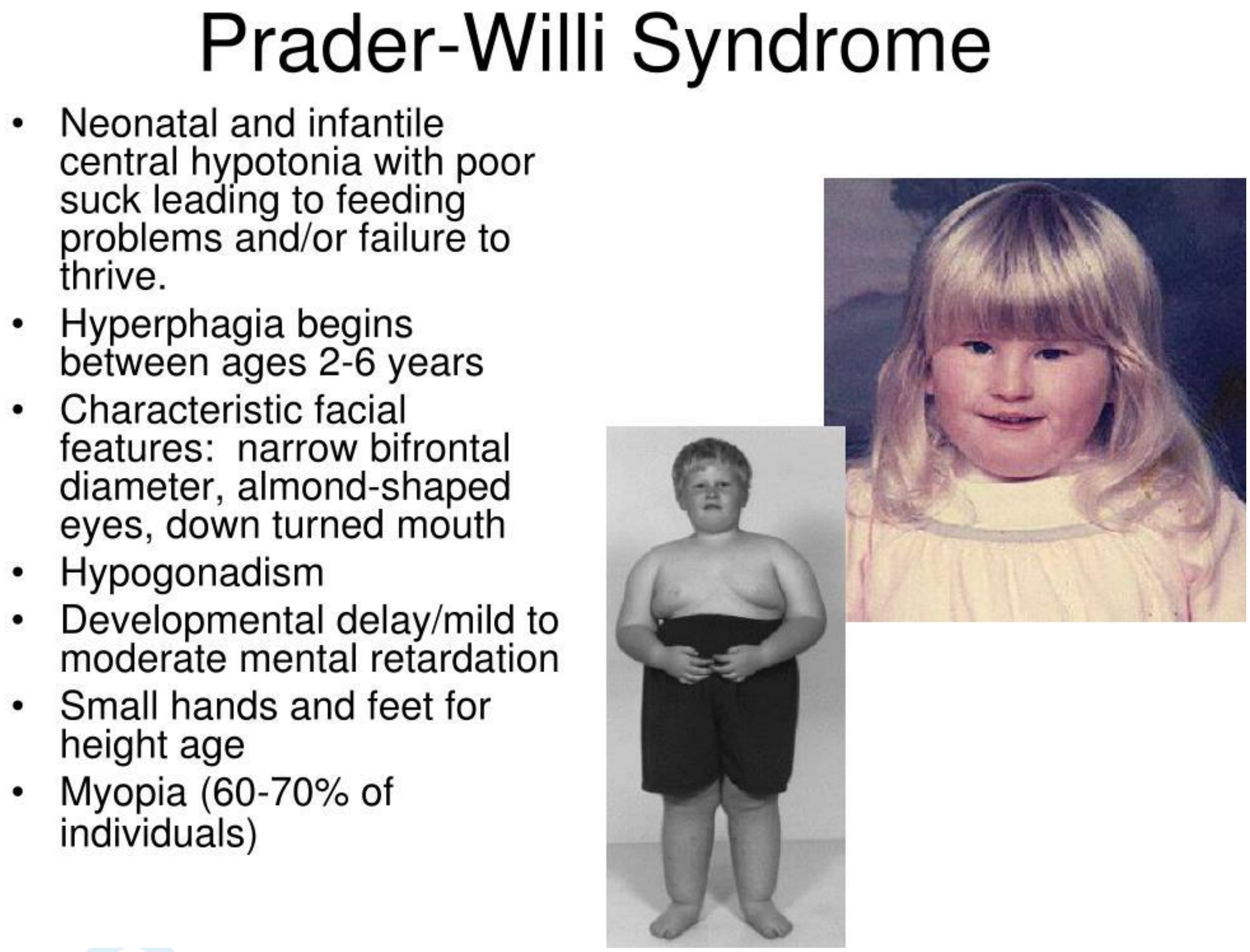
- **DNA methylation analysis**
- **Microarray**
- **FISH (fluorescence in situ hybridization)**
  These tests detect deletions, uniparental disomy, or imprinting defects.

Ali:
What is the expected life span?

Dr. Hassan:

Prader-Willi syndrome is **not lethal** in childhood. With good care, individuals can live into their **50s or beyond**. However, the **main risk** is **complications from obesity**, such as **heart failure**, **diabetes**, and **respiratory issues**.

The **hyperphagia** in PWS is due to **hypothalamic dysfunction**, affecting hormones like **leptin** and **ghrelin**, which control hunger and fullness.



Prader-Willi Syndrome

- Neonatal and infantile central hypotonia with poor suck leading to feeding problems and/or failure to thrive.
- Hyperphagia begins between ages 2-6 years
- Characteristic facial features: narrow bifrontal diameter, almond-shaped eyes, down turned mouth
- Hypogonadism
- Developmental delay/mild to moderate mental retardation
- Small hands and feet for height age
- Myopia (60-70% of individuals)

DR.

GDD with increase seizure frequency

Background information:
16 years old girl has seizures since infancy, refered with increase in seizure frequency. has been diagnosed before 1 year with a rare genetic disease she has global developmental delay with multible issues.
Task: Task explain to the mother Mrs Fatma the condition of her girl Nada
Role: You are ST4 Dr Esraa

Dr. Esraa:
Good morning, Mrs. Fatma. Thank you for coming in today. I know this journey with Nada has been long and difficult, and I want to explain everything clearly and make sure you feel supported.

Mrs. Fatma:
I'm overwhelmed about my girl's condition. Since she was diagnosed with this gene condition, I feel like it's our fault that she got this disease. I have issues regarding her movement, her education, and her speech — and now these frequent seizures.

Dr. Esraa:
You've been carrying so much. I want to start by saying: **Nada's condition is not your fault.** Genetic conditions happen because of changes in the genes, and many of these changes happen randomly — without any warning, and without anything you did wrong. Sometimes they are inherited silently; other times, they just happen during development. What's important is: you didn't cause this.

Mrs. Fatma:
I feel like I did. I feel guilty. If it's genetic… I gave it to her. I gave her this life.

Dr. Esraa:
Please don't carry that guilt, Mrs. Fatma. Genetic diseases are not something a mother causes. These gene changes can happen without warning — they're not a result of anything you did or didn't do.

Mrs. Fatma:
Now her seizures are happening more often. Could it be her medications? I think they're not working anymore.

Dr. Esraa:
You might be right. As children grow, their bodies change — so the medications that used to work may not be enough anymore. Sometimes we need to add on other medication.
Also illness, head trauma, stress, exhaustion, flashlights, lack of sleep all of this could be triggers for seizure so you need to avoid it.

Also, some seizure types respond better to different medications. I will make an **urgent referral to the paediatric neurologist**, so they can review her treatment, check her levels if need, and possibly change her medications.

Mrs. Fatma:
Can my girl tolerate these medications for long period of time?

Dr. Esraa:
Many children use these medications for long duration of their life as we usually weigh the risk against benefits, and here the benefit is greatly more.

Mrs. Fatma:
What if all the medications failed?

Dr. Esraa:
now with the new technology a lot of modalities now present to help children with resistant seizures like vagal nerve stimulation, sometimes we use special diet called ketogenic diet, sometimes we go up to surgery but we use this in special situations when all the medications fail to control the fits.

Mrs. Fatma:
Is there anything I can do at home to stop the seizures?

Dr. Esraa:
Yes — and you're doing a great job already. But there are a few keyways to help reduce seizure frequency:

- Give all medications on time, every day — no missed doses.
- Make sure she gets enough sleep — tiredness is a common trigger.
- Treat fevers quickly — they can trigger seizures too.
- Keep a **seizure diary** — record the date, time, how it looked, how long it lasted, and any possible triggers.
- Try to keep her environment calm and predictable.

Mrs. Fatma:
When she has a seizure, I panic. I'm afraid I'll do something wrong. I don't feel confident.

Dr. Esraa:
That's completely normal. Watching your child have a seizure is frightening — but we'll walk through it together.

✅ **What to Do During a Seizure:** *in any seizure scenario even if not asked about should mention*

1. **Stay calm**.
2. **Lay her on her side** to keep her airway clear.
3. **Don't put anything in her mouth**.

4. **Don’t leave her.**
5. **Don’t restrain her movement.**
6. **Time the seizure** — if it lasts more than 5 minutes, prepare your emergency medications (buccal or trans nasal medaz), call emergency.
7. **Stay with her** until she wakes up. She might be sleepy or confused — let her rest.

I’ll give you a printed emergency seizure plan to keep at home and share with her school or carers.

Mrs. Fatma:
I have 3 small children. I’m a single mother. I can’t do this. I’m afraid if something happens to me… what will happen to Nada?

Dr. Esraa:
Fatma, I see the weight you're carrying. You're not only caring for your daughter, but doing so with deep love and devotion. Still, you shouldn't have to carry this alone.

I’d like to connect you with the right support: a counsellor, a support group, and respite care—so you can feel more like yourself again. You’re never alone in this. Your daughter will be cared for by a multidisciplinary team of professionals, including many doctors, who are here to support her needs.

Here are some ways we can help:

- **A family support social worker** — to assist with in-home care, respite services, benefits, and other practical support.
- **Counselling or mental health support** — not because there's something wrong with you, but because your well-being is just as important.
- **Respite care** — to give you time for yourself, which is vital to sustaining your strength through this journey.

Mrs. Fatma:
Sometimes I feel like I’m drowning. I don’t know how to cope anymore.

Dr. Esraa:
You’ve already survived so much, Fatma. And coping doesn’t mean doing everything perfectly — it means allowing yourself to ask for help. It means resting when you can. It means knowing that **you’re doing your best, and your best is enough**.

We’ll work on a full **seizure care plan**, connect you to services, review Nada’s medications with neurology, and make sure you have emotional support too. You’re not alone anymore in this. Feel free at any time to ask for help we are all here for you.

PROCEDURES

Refaat

Bronchoscopy

Background information: Khalid 3 years old presented with frequent un resolving pneumonia following history of aspiration episode. Decision was taken to do bronchoscopy to check for foreign body aspiration.

Role: Dr Ali ST3 paediatric registrar.
Task: explain to Mrs Laila the procedure and take her consent.

Dr. Ali:
Mrs Laila I'm here today to update you about Khalid's management plan but before we start can you tell me what do you know so far about his condition?

Mrs Laila:
Yeah dr Khalid was good till 2 weeks ago he took some hazelnuts and got chocking he kept coughing but thanks God he got it out, since then he developed temperature and they found some infection on the right side they told me its pneumonia for which he received 2 courses of antibiotics, but there is no improvement.

Dr. Ali:
Sorry for hearing that, so Mrs Laila from this history and the course of his chest infection, we think that this pneumonia could be caused by foreign body aspiration whether from food particle or anything else.

Mrs Laila:
But Dr why do you think it was caused by foreign body; I told you he got it out after coughing? Why not the antibiotic you gave him is not appropriate?

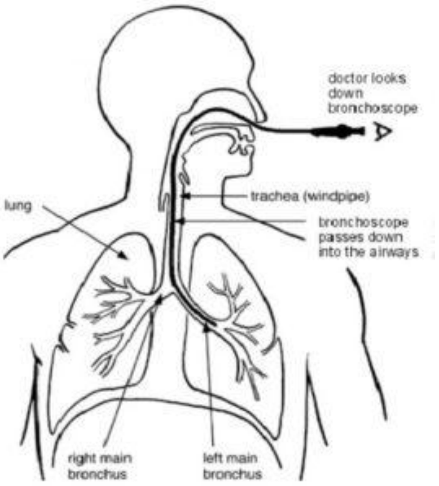
Dr. Ali:
I appreciate your worries Mrs Laila but unresolving of the symptoms after giving appropriate antibiotics together with the history of chocking even if the child felt that everything had come out sometimes small particles may remain in his air pipes and cause this infection. And this is our protocol with children with long course of cough, recurrent infections especially on the same side.

Mrs Laila:
What will you do now?

Dr. Ali:
That's good question, now we planned to do certain procedure to confirm or exclude presence of foreign body, and we need to take your consent regarding it, it's called Bronchoscopy. Have you heard about it before?

Mrs Laila:
No Dr what is this?

Dr. Ali: **DRAW**


doctor looks down bronchoscope
lung
trachea (windpipe)
bronchoscope passes down into the airways
right main bronchus
left main bronchus

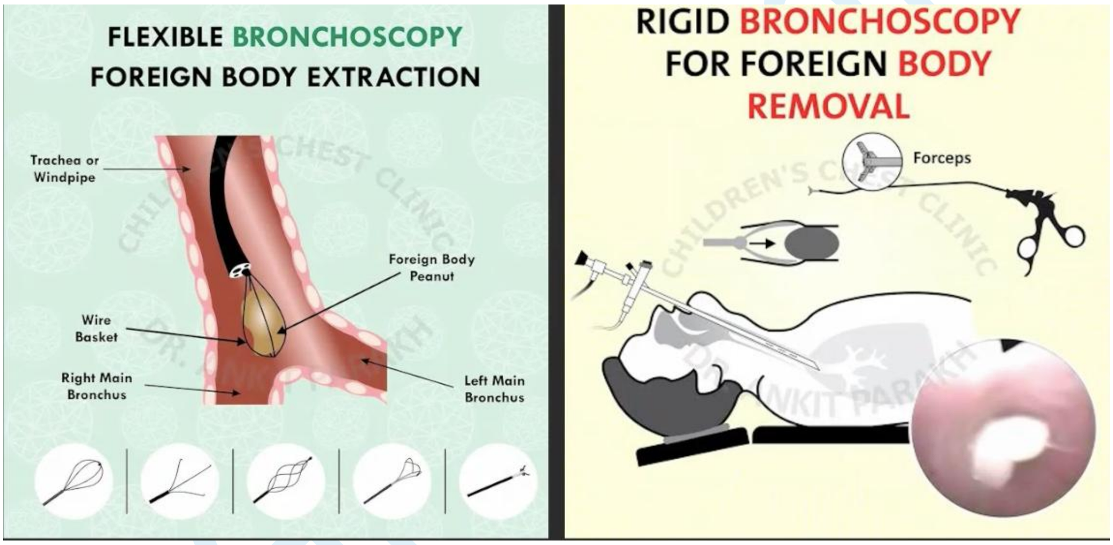
let me explain to you Bronchoscopy is a way of looking inside your child's large airways. The bronchoscope is a long tube that has camera and a light which shines to allow the doctor to have a clear view of the airways.

The bronchoscope is passed through the mouth or nose and down the back of the throat into the windpipe which is called trachea and down into different parts of the lungs the smaller airways – bronchi and bronchioles.

This usually done while the child is under sleeping medications then he will be observed and continue receiving his antibiotics till resolving antibiotics.

Mrs Laila:
Are they able to remove the foreign body if they found it?

Dr. Ali:
its removed by something called flexible or rigid bronchoscope through which instruments can be passed to allow samples to be taken or to remove foreign body in something like a basket and even to suction the small particles but all of these details will be discussed later with the bronchoscopy team.


FLEXIBLE BRONCHOSCOPY
FOREIGN BODY EXTRACTION
Trachea or Windpipe
Foreign Body Peanut
Wire Basket
Right Main Bronchus
Left Main Bronchus
RIGID BRONCHOSCOPY FOR FOREIGN BODY REMOVAL
Forceps
CHILDREN'S CHEST CLINIC
DR. ANKIT PARAKH

Mrs Laila:
Who will do it?

Dr. Ali:
its usually done by bronchoscopy team including lung specialist dr who is called pulmonologist, sometimes done by ear nose and throat dr and sometimes chest surgeons are involved so it's a team not single person.

Mrs Laila:
What is the complications of that procedure?

Dr. Ali:
Like any procedure it can has some drawbacks it can cause some discomfort and pain during the procedure that's why we usually do it under sleep medications, it can cause trauma to nearby structures but this is unlikely as it will be done by an expert dr, some times it can cause sore throat or some cough this is usually resolved by some lozenges and pain killers.

Mrs Laila:
OMG it sounds that risks and benefits are equal so give me time to ask my spouse and think about it.

Dr. Ali:
Mrs Laila weighing risk vs benefits, the benefits here is greatly more, it gives us accurate diagnosis, immediate treatment through minimal invasive procedure, speedy recovery, prevent any long-term complications from leaving the foreign body for long time.

and waiting too long increase the risk of this infection to progress to lung damage. That's why we prefer to do it as early as we can.

Mrs Laila:
What could be the alternative if I disagree to do it?

Dr. Ali:
The best way is to do the bronchoscopy as its not only used for diagnosis but also help in management and removal of foreign body if found. However, the other alternatives like sophisticated imaging as computed tomography or MRI, they found they're not as bronchoscopy in detecting foreign bodies imagine with me to go with a camera inside the air tube itself or taking pictures from outside, also not all foreign bodies show up in the imaging.
Bronchoscopy is the only method for both diagnosis and removal of foreign body.

How do you find it now? Do you have any other concern?

Mrs Laila:
No Dr its all clear now.

Dr. Ali:
So can we take your consent now?

Mrs Laila:
Yes of course

Dr. Ali:
great so let me summarise to you.

Bronchoscopy – Key Points

- It is a procedure used to look directly inside the large airways of the lungs.
- A thin tube with a camera and light is inserted through the mouth or nose, down the throat, into the windpipe and airways.
- It is usually performed under sedation so the child is asleep and comfortable.
- It helps confirm or rule out a foreign body in the airways, especially when symptoms do not improve after treatment.
- If a foreign body is found, a rigid bronchoscope can be used to remove it using special instruments.
- The procedure is carried out by a trained specialist team.
- Possible complications include temporary sore throat, coughing, discomfort, and very rarely injury to nearby structures.
- Benefits include accurate diagnosis, the ability to treat and remove a foreign body immediately, faster recovery, and prevention of long-term lung damage.
- Alternatives like CT or MRI are less reliable because they may not detect all foreign bodies and cannot remove them.

Cecostomy

Background information: Hassan is 2 years old has Myelomeningocele complicated by sever chronic constipation, and frequent impaction needed evacuation multiple times now decision was taken to do cecostomy.

Role: Dr Sara ST4 Registrar.
Task: take consent from the mother Mrs Alia for the procedure and answer all her concerns.

Dr Sara:
Good morning, Mrs Alia. I'm here to talk about Hassan's constipation and the plan for a cecostomy tube. Can you tell me what you already know about his condition?

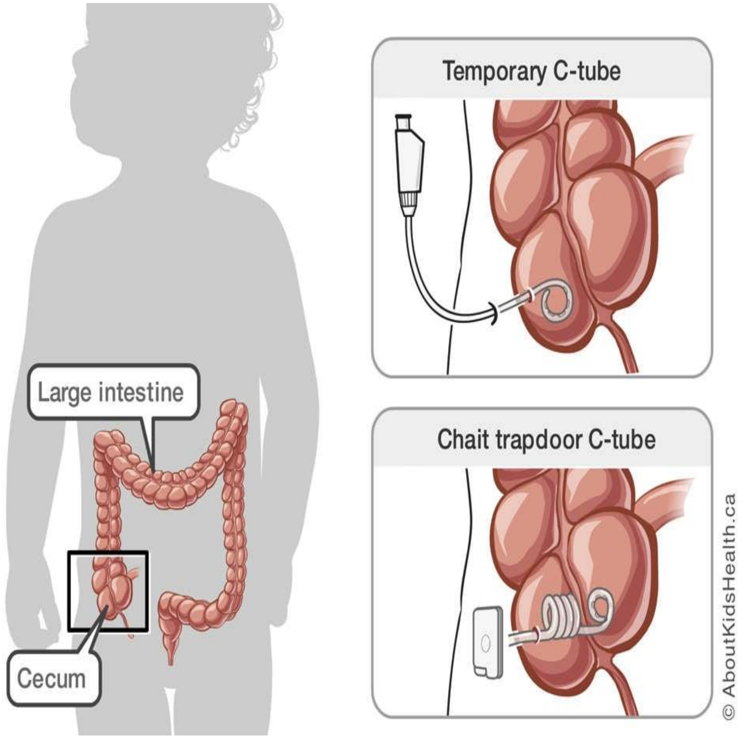
Mrs Alia:
Hassan since birth has problem in his back and they fix it but since then he has a problem with both defecation and urination. He was on CIC to evacuate the urine from time to time by catheter and now they put like a small tube to evacuate the urine. But we still have problem with constipation he went through impaction several times and every time he go for evacuation, I don't know how to deal with that?

Dr Sara:
I know how its difficult for you Mrs Alia to experience all of this with Hassan. In cases of myelomeningocele although the back was repaired, sometimes they keep having ongoing problems with his bladder and bowel. Because the nerves to the bowel don't work properly, he can't pass stool normally, which leads to severe constipation and impactions. Up to now, we've been managing this with medications, enemas, and hospital evacuations, but since it keeps happening, we are considering something called a cecostomy tube to make bowel management easier and safer at home have you heard about it before?

Mrs Alia:
No Dr what is this?

Dr Sara:
I'll explain to you this is our bowel, small bowel and large bowel connected here at this pouch which is called the caecum. It's the 1st part of the large bowel then the large bowel continues till the back passage.
A **cecostomy tube** is a small, soft tube that is surgically placed into the **caecum**

It provides a way to wash out the bowel from the start of large bowel, using warm water or a special solution rather than giving the usual enema. The fluid travels through the bowel and helps push out stool through the back passage in a more controlled way.


Large intestine
Cecum
Temporary C-tube
Chait trapdoor C-tube
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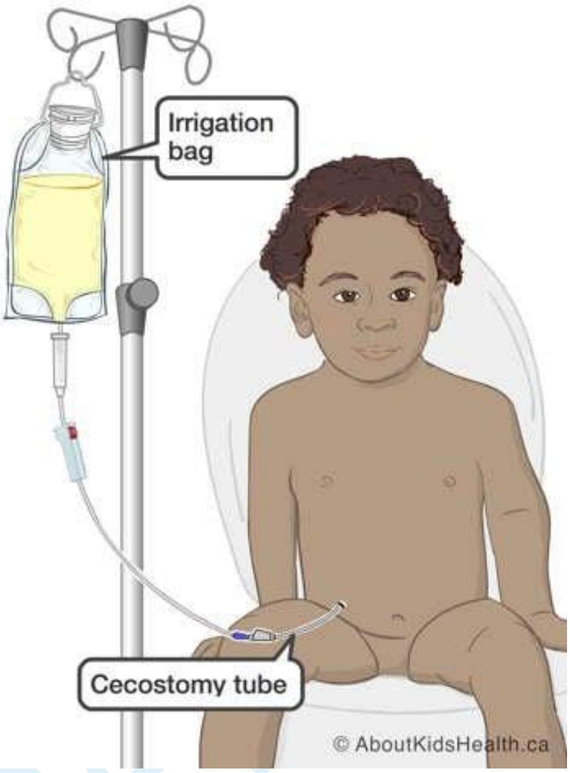
Irrigation bag
Cecostomy tube
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Mrs Alia:
what is the pros and cons of this procedure because I don’t want to go for unnecessary procedures?

Dr Sara:
The main ***benefit*** is that it helps empty his bowel regularly, reduces constipation, and avoids painful impactions and repeated hospital visits, improves the quality of life, also its minimal invasive option as it makes us avoid major invasive procedures to manage intestinal obstruction.

The ***cons*** are that
*It’s a surgical procedure however its minor procedure and usually complication is rare.
*Involves caring for a tube, which requires training and daily use however managing constipation requires frequent enemas which may cause more discomfort and pain to the child.
*It doesn’t cure the underlying nerve problem, but it gives better control of his bowels.

Mrs Alia:
what is the possible complication?

Dr Sara:
*Leaking of fluids around the tube but we will do it with good seal and if any leakage just come back to us.
*The tube could be blocked or dislodged but if happened please come back we know how to deal with.
*skin irritation.

DR. Ghada Re

Mrs Alia:
What’s my role in this?

Dr Sara:
You will play a very important role. We’ll train you to flush the tube at home, usually once a day. You’ll learn how to clean the skin around it, recognise signs of infection, and help Hassan develop a regular routine, the tube needs to be changed periodically, and we will teach you also how to do that.

Mrs Alia:
Do you think my child need it?

Dr Sara:
Yes, I do. Because Hassan has already had several severe impactions and hospital admissions, this procedure will make things much safer and improve his quality of life. It’s recommended for children with his condition when standard treatments aren’t enough.

Mrs Alia:
How often should I use it?

Dr Sara:
It depends upon decision of the team. It’s done on regular basis usually once or twice daily but the schedule is adjusted according to the response of the child.

Mrs Alia:
After the tube insertion do my child still need laxatives or enemas?

Dr Sara:
Most children don’t need enemas anymore. But you need to keep on the dietary management as recommended and continue his medications as been prescribed to keep the washouts more effective.

Mrs Alia:
Can my child go to school normally and play sport with this tube?

Dr Sara:
Yes, he should be able to go to school normally. The tube is usually low-profile, sitting flat against the tummy under clothes. He can do most activities, including sports, swimming, and playing. We’ll advise on any special precautions.

Mrs Alia:
For how long it will be there?

Dr Sara:
There is 2 types of cecostomy sometimes its inserted temporary to relieve the condition and sometimes used for long time, so it depends on the surgical decision but it could be used for

long time as so far the clinical condition not yet improved and the child still need it. In myelomeningocele in most of case scenarios its needed for long time.

Mrs Alia:
How they will do the procedure?

Dr Sara:
It’s done under general anaesthetic. Either open surgery where the surgeon makes a small opening in the tummy and places the tube directly into the caecum. Or sometimes it’s done with a keyhole operation (laparoscopy). It usually takes less than an hour, and most children stay in hospital for a couple of days afterwards while we make sure the tube is working and you feel confident with using it.

Mrs Alia:
Ok dr let me think about it.

Dr Sara:
Of course. Please take your time. I’ll give you written information and you can ask me anything at all. We want you to feel fully confident before making a decision.

Lumbar puncture

Background information: Ali was admitted with a high-grade fever, septic shock, and meningitis was suspected. Antibiotics were started immediately, and the child is now showing signs of improvement. A septic screen was carried out, but the lumbar puncture was postponed until the child was stabilized. We now need to perform the lumbar puncture to confirm the diagnosis and guide further management.

Role: Dr Esraa ST4 Registrar.
Task: Explain Ali's condition to the mother Mrs Sara and take consent for lumbar puncture.

Dr Esraa:
Good morning, Mrs Sara. I'm here today to take your consent for doing certain procedure for Ali called Lumbar puncture, but before we start can you tell me what do you know so far about him?

Mrs Sara:
Ali was having high temperature non responsive to medications, then he started to be dizzy, sleepy all the time, not good at all, we came to the hospital, and they did some test for him and started antibiotics and thanks God now he started to improve but I don't know what was the cause of this?

Dr Esraa:
It's great news that he's getting better. I'm here now to explain everything to you. Mrs Sara when we examined Ali, we suspected that he has meningitis, have you heard about it before?

Mrs Sara:
No dr what is this?

Dr Esraa:
Meningitis is an inflammation of the protective membranes that surround the brain and spinal cord which is called meninges.

Mrs Sara:
Inflammation around the brain!! Is it serious?

Dr Esraa:
I'm sorry to tell you that it's a serious condition. But the good news that Ali now is improving.

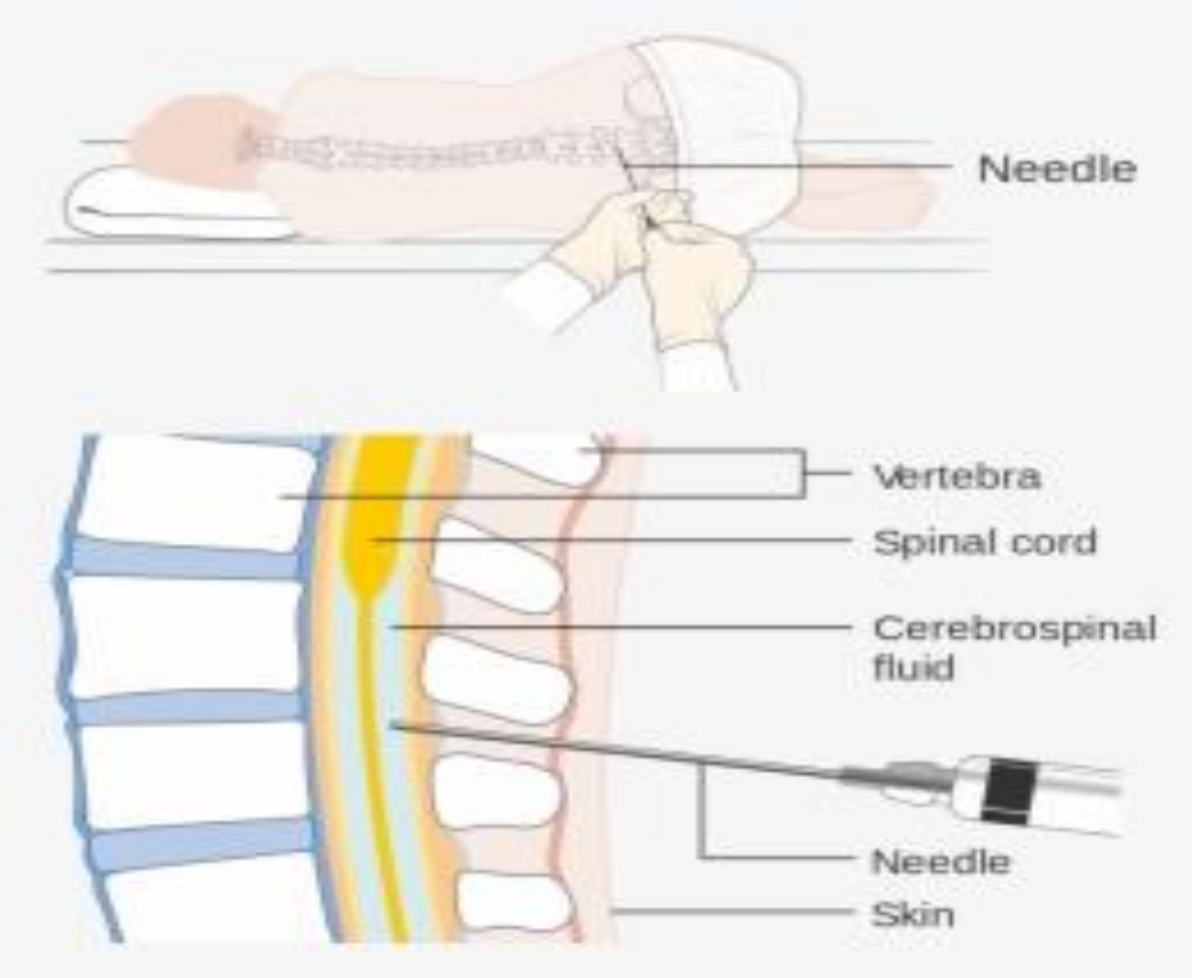
Mrs Sara:
Are you sure from diagnosis?

Dr Esraa:
The best test to confirm the diagnosis of meningitis is a procedure called Lumbar Puncture, and this is what I want to speak with you about now and take your consent to do it. Would that be ok?

Mrs Sara:
Yes dr

Dr Esraa: DRAW
Imagine this is the brain, and from the brain, the nerves come down along the back inside blocks of bones called the **vertebral column**. In the lower part of the back, there is no nerves because they stop a bit higher up. The space inside these bones is filled with a clear fluid that surrounds the brain and spinal cord — this fluid is called **cerebrospinal fluid (CSF)**.

A **lumbar puncture** is a test where we gently insert a small needle into the lower back where there's no nerves, between the bones, to take a small sample of this fluid (CSF). By analysing this fluid, we can confirm whether meningitis is present and identify which germ caused it. This information helps us choose the best treatment for Ali.



Mrs Sara:
Why they didn't do it from the start?

Dr Esraa:
This procedure can't be done if the child is so sick like Ali's condition when presented to us, so we start management till his condition improve at this time we can do the procedure safely.

Mrs Sara:
It looks so painful how it's done?

Dr Esraa:
I appreciate your worries Mrs Sara, it's a simple procedure that takes few minutes. We usually use numbness cream on that area, so the child won't feel any pain during the procedure, then specialised dr insert tiny needle between the spines, Spinal fluid is dripped into special containers and sent to the laboratory for testing.

Mrs Sara:
What is the drawbacks of this procedure?

Dr Esraa:
Sometimes it causes short-lived back discomfort at the needle site; or headache that usually settles with time and painkillers.
And rarely it causes bleeding at the site but we will check Ali's blood clotting and make sure there are no signs that would make the LP unsafe before we do it.
It can cause infection, but we do it under strict clean conditions to prevent any infection.

Mrs Sara:
Is there any other alternative?

Dr Esraa:
There is some test called blood culture which check presence or absence of microbes in the blood but it can't confirm or exclude presence of meningitis, the only way to diagnose this condition I'm sorry to tell you it's lumbar puncture.

Mrs Sara:
But dr I see my child improving now, why you didn't rely on this and continue giving the medications?

Dr Esraa:
That's an excellent question, Mrs Sara. Even though Ali is improving with the antibiotics we started, doing a lumbar puncture now is still important as the lumbar puncture is the only way to confirm diagnosis of meningitis, also allow us to know the type of microbe that caused the infection. This helps us choose the right antibiotics and decide how long he needs

them because some microbes require 2 weeks of antibiotics some require 3 weeks, it depends.

Mrs Sara:
But won't the antibiotics already given make the test useless or change the results?

Dr Esraa:
to some how yes it could affect the results but now with the sophisticated techniques we are able still to detect the microbes, so the test still valid and needed.

Mrs Sara:
Can I attend this?

Dr Esraa:
I do understand how desperately you need to attend such difficult time with your child; this is normal and natural from a keen mother like you. I will try to help you regarding this, but it depends on the applicability of that because they need this area to be very clean and safe from any infection at this time which is called strict sterilisation to prevent any spread of infection, the team who will do the procedure usually wear protective equipment. And the infection control team ensures that everyone in the room has a role in the procedure to avoid infection, however I'll discuss with our team to see if you are able to attend that and I'll give you feed back. But if not possible you can also wait for him outside the room and the procedure will take only few minutes.

Mrs Sara:
Is their any long term sequalae?

Dr Esraa:
As any procedure there could be some pain however its unlikely as its done by tiny needle and we put numbness cream before, he could develop some headache and if happened it will resolve easily by over counter medications, infection is one of the complications however its totally unlikely as the procedure is done under complete clean situation

Mrs Sara:
What will happen after that, will you discharge my child?

Dr Esraa:
It depends on his condition and the results of the LP because some microbes require long course of antibiotic, but don't worry we will keep you updated at every step.

Rectal biopsy

Background information: Adel has constipation since birth not improving with laxatives. He is suspected to have Hirschsprung disease. The surgical team decided to do rectal biopsy.

Role: Dr Ola ST4 Registrar.
Task: Explain to the mother Mrs Hala the need for doing rectal biopsy for Adel and explain all the details related to the procedure.

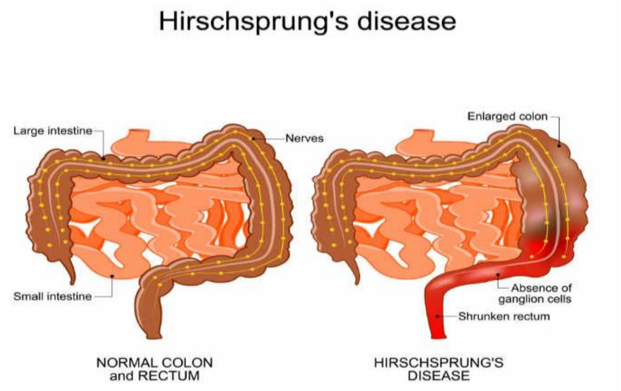
Dr Ola:
Good morning, Mrs Hala. I'm here today to talk with you about Adel's condition, can you tell me 1st what do you know so far about his condition?

Mrs Hala:
Adel since birth has chronic constipation the drs prescribed different medications even Movicol doesn't work we tried enemas also he is even not gaining weight well, I don't know why?

Dr Ola:
I'm sorry that you feel that regarding your child Mrs Ola. Now because his chronic nonresponsive constipation he is suspected to have condition called Hirschsprung disease and to diagnose it we need to do some thing called rectal biopsy have you heard about Hirschsprung disease before?

Mrs Hala:
No dr what is this?

Dr Ola:
Let me explain to you, this is our bowel **DRAW**. The bowel is in a continuous movement pushing the food content and digestive bolus towards the end of the bowel which is the back passage. This movement influenced by nerves. The problem with Hirschsprung there is a ring area with no nerves, its some thing the baby born with so when the food reaches this area it can't distend to pass the food, so the food stuck at this area causing constipation. I'm sorry to tell you the only way to know this is just to go to this area and take sample and check under the microscope to see if there is nerves or not and this is what we call rectal biopsy.



Mrs Hala:
Why you think he has this condition not simple constipation?

Dr Ola:
This is very good question from a keen mother like you, actually because simple constipation would improve with lifestyle modification and medical treatment but because Adel is not improving and he is not gaining weight we must think about Hirschsprung disease and exclude it.

Mrs Hala:
How serious is this Hirschsprung disease?

Dr Ola:
the problem with Hirschsprung that it could have some complications like inflammation in colon or large bowel as the child could have loose motions and thrown ups and high grade fever, it could affect the growth of the child, also the dilated area of the colon could have impacted stool leading to intestinal obstruction but the good news is that once its diagnosed and managed we can avoid all this complications.

Mrs Hala:
Can you give me more information about this rectal biopsy? How is the biopsy performed?

Dr Ola:
Yeah, there is 2 types of biopsy ***suction biopsy*** and ***surgical rectal biopsy.***
suction biopsy usually done in Outpatient clinic, usually children experience no pain, with no precautions and no anaesthesia is required.

While **surgical biopsy Full thickness biopsy** requires hospitalization usually for 1 day.
Cause temporary discomfort and done under anaesthesia.
The decision usually with the dr who will do it and of course he will inform you prior to the procedure with the best option for your child.

Mrs Hala:
Will my child feel pain during the procedure?

Dr Ola:
In suction biopsy it usually causes mild discomfort but usually no pain. While in surgical it can cause some pain, but it's done under anaesthesia so usually the child doesn't feel any pain except after the procedure can experience mild pain.

Mrs Hala:
Are there any complications from this procedure?

Dr Ola:
It's a minor procedure but like any procedure could have side effects it can lead to mild

temporary discomfort, slight bleeding. However it's unlikely to happen because a professional team will do this.

- If persistent bleeding -> seek medical advice.

Mrs Hala:
How should I care for my child after?

Dr Ola:
In suction biopsy you don't have any special care beyond keeping this area clean.

While in surgical biopsy the child could have scar and slight discomfort. So sometimes they prescribe stool softener to avoid constipation and straining, sometimes they advise to avoid medications given from back passage which is called suppositories. You need also to check his diaper for any bleeding, and if any don't hesitate to come back.

Mrs Hala:
How long this procedure will take?

Dr Ola:
You will know all the details from the surgical dr who will do it. He will tell you when exactly it will start and when its expected to have your child back in your hands, what I know is that it doesn't take too long it's around 30 min. but as I said I'm not the best person to tell you that.

Mrs Hala:
When will we get the results whether my child has this condition or not?

Dr Ola:
It totally depends on the laboratory and how long the samples will take to be examined I can't guarantee exact timing I'm really sorry about that.

Mrs Hala:
What will be the next step if this biopsy came positive for Hirschsprung?

Dr Ola:
Mrs Hala:
If it came +ve -> the surgeon will take the decision to remove affected area and reconnect the healthy parts together. Sometimes this done on 1 step or 2 steps. And at this time, he will discuss the two options with you.

Mrs Hala:
What if the biopsy came normal does it exclude this condition? and what could be the other cause?

Dr Ola:
If -ve -> yeah, it's unlikely to be Hirschsprung so we will search for other causes of chronic

constipation like motility disorders. If still suspecting Hirschsprung, sometimes they require to repeat it again, but this is very rare.

Mrs Hala:
Will my child eat normally before and after the procedure?

Dr Ola:
All these details will be discussed with the team who will perform the procedure but as any procedure requiring anaesthesia, we usually keep the child fasting for few hours before usually around 4 hours. But afterwards they will permit for normal diet shortly after the procedure according to the condition of the child and the advice of the team at this time.

Mrs Hala:
Can Hirschsprung disease be cured?

Dr Ola:
Yes, surgery to remove the affected part will cure for the child.

Mrs Hala:
Will the child experience long term digestive constipation after the operation?

Dr Ola:
Most children after the operation may have some occasional loose stool, constipation or difficulty controlling the bowel. But you will never be alone, the drs will always be following your child and giving pieces of advice and they manage if anything required.

Mrs Hala:
Does Hirschsprung disease run in family? Because me myself have constipation could I have the same condition?

Dr Ola:
I'm sorry to tell you it can be inherited but not always, but they found person with Hirschsprung may have slightly high risk to have again in his family. But this condition not necessary to affect all family members. And no necessity to examine other family members.

You might not have the same condition as constipation of Hirschsprung it different than the usual constipation.

Important key points:

Hirschsprung's Disease

- A congenital condition where a segment of bowel lacks nerve cells (ganglion cells).
- This prevents normal movement of stool, leading to **chronic constipation, poor weight gain, and risk of complications** such as enterocolitis, bowel obstruction, and impaired growth.
- Unlike simple constipation, it does **not improve with medications or diet**.

Rectal Biopsy – Purpose

- The **only definitive test** to confirm or exclude Hirschsprung's disease.
- Involves taking a tissue sample from the rectum and examining it under a microscope for **ganglion cells**.

Types of Rectal Biopsy

1. **Suction Biopsy**
    - Done in outpatient setting.
    - No anaesthetic needed.
    - Quick, usually painless (may cause mild discomfort).
    - Minimal aftercare, just keep the area clean.
2. **Surgical (Full-Thickness) Biopsy**
    - Done under anaesthesia in hospital.
    - Requires short admission (around 1 day).
    - Child may feel mild pain afterwards.
    - Aftercare includes monitoring for bleeding, scar care, stool softeners to reduce straining, and avoiding suppositories initially.

Risks and Complications

- Generally safe, but may cause:
    - **Mild discomfort**.
    - **Slight bleeding** at biopsy site.
- Persistent bleeding is rare but requires medical attention.

Timing and Results

- Procedure takes about **30 minutes**.
- Results depend on laboratory processing time.
- If **positive** → confirms Hirschsprung's, surgery is needed to remove the affected segment.
- If **negative** → Hirschsprung's is unlikely, but if suspicion remains high, a repeat biopsy may be considered (rare)

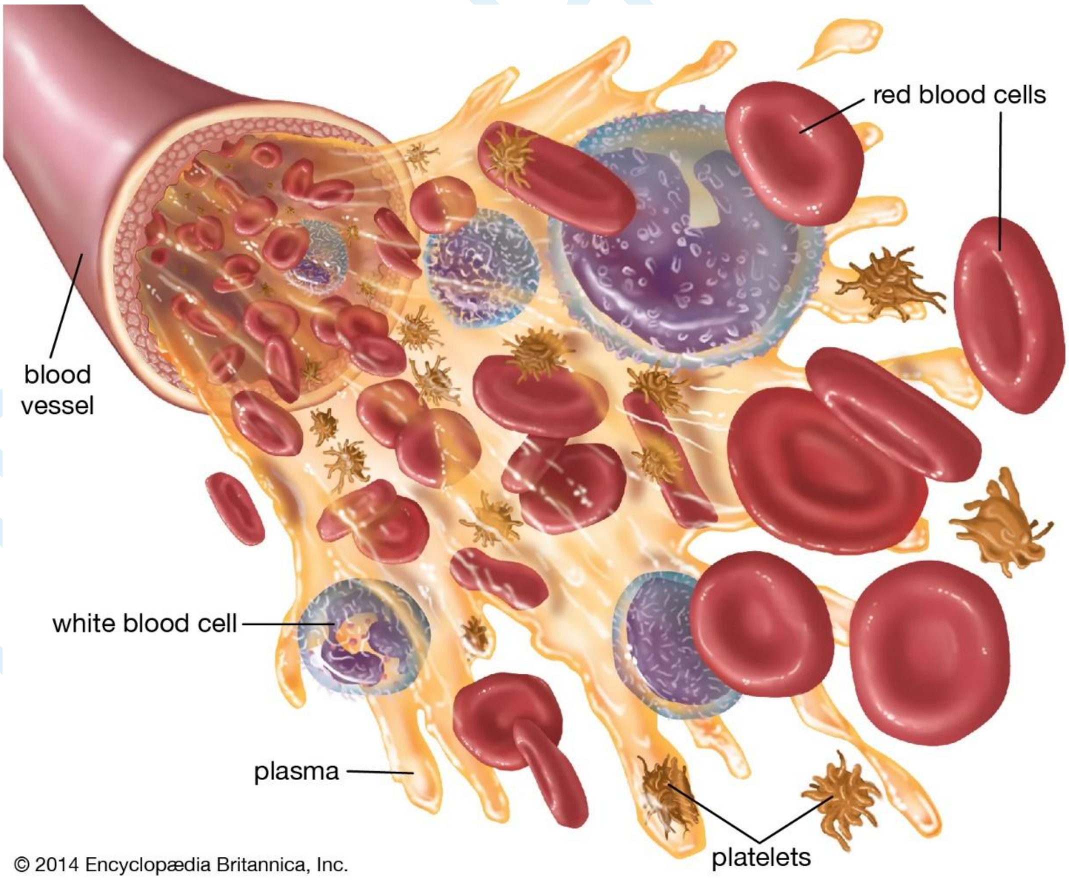
Feeding and Care

- Child usually needs to **fast for a few hours before** the biopsy if anaesthesia is used.
- **Normal diet** is usually resumed shortly after the procedure, depending on recovery.

Long-Term Outlook

- Hirschsprung's disease is **curable with surgery**.
- Some children may have ongoing issues (constipation, loose stools, or soiling), but most improve with long-term follow-up and support.
- There is a **slightly increased risk in families**, but not all members are affected, and ordinary constipation is not the same as Hirschsprung's disease.

HAEMATOLOGY


red blood cells
blood vessel
white blood cell
plasma
platelets

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Dr. ... la Refaat

Henoch–Schönlein Purpura (HSP).

Background information: Hana presented with a non-blanching rash over both legs associated with severe abdominal pain.

Initial investigations were performed, including a complete blood count (CBC), routine blood tests, and a coagulation profile. All results were within normal limits.

Based on the characteristic clinical presentation and normal laboratory findings, she was diagnosed with Henoch–Schönlein Purpura (HSP).

Role: Dr Esraa ST3 Registrar.
Task: You are required to discuss the diagnosis and further management plan with her mother, Mrs. Nagwa.

Dr Esraa:

Hello Mrs. Nagwa, I'm Dr. Esraa, one of the paediatric registrars looking after Hana. I'd like to explain what we have found and discuss the plan with you. But before we start, do you need anyone to attend with you this meeting?

Mrs. Nagwa:
No Dr, please tell me I'm so afraid about this rash and her tummy aches. I've read on the internet that this rash could be meningitis. I'm so weird about that

Dr. Esraa:
I really understand your worries Mrs Nagwa, first I want to reassure you it's not meningitis, after examining Hana and receiving the blood test results we found she has a condition called **Henoch–Schönlein Purpura**, or HSP. Have you heard about it before?

Mrs. Nagwa:
No Dr, what is this?

Dr. Esraa:

It is a disease caused by inflammation of small blood vessels or conduit all over the body. Affecting mainly for places: skin, joint, kidney, gut. And can affect other areas in the body as well.

The rash appears because the small blood vessels under the skin become inflamed and leak a little blood, which causes those purple spots. Am I clear?

Mrs. Nagwa:
what is the reason of all of that?

Dr Esraa:
It may be due to the defence system slightly overreacting. And instead of attacking bugs it attacks the blood vessels. Sometimes it happens after an infection. but in many cases, we don't find a clear trigger.

Mrs. Nagwa:
Is this serious?

Dr. Esraa:
Usually not. Most children recover fully without long-term problems. As it comes spontaneously it goes spontaneously even without need for treatment.
however in some cases it could have setbacks or recurrence.

The outlook usually depends on presence or absence of ***kidney affection***. If there is no kidney affection the prognosis is excellent. But if there is kidney affection the good news that most of children will grow out of it with close monitoring and good management. But unfortunately, some children may develop permanent kidney damage.

That's why we need to have ***serial assessment*** for the **kidney function** and check the **urine** for presence or absence of certain materials we also need to check the **blood pressure** whether the child has kidney affection or not there is a ***schedule for follow up*** and its important to be adherent to this follow up schedule as been prescribed by the team.

Mrs. Nagwa:
But her blood tests were normal. How did you know?

Dr. Esraa:
HSP is mainly a **clinical diagnosis**.

We look at: The typical rash, The abdominal pain, Her age group.

Her blood tests and coagulation profile being normal actually support the diagnosis and help us exclude other serious conditions.

We will continue to use urine and blood tests to monitor for complications.

Mrs. Nagwa:
What is the next step now?

Dr Esraa:

Now we will admit Hana to the hospital as she has this sever tummy aches to exclude presence of certain complication called intussusception when loops of the gut got entangled inside each other like telescope, after exclusion sometimes we need to start corticosteroid to decrease this inflammation. We will also monitor her urine and blood pressure.

Mrs. Nagwa:
Will she need cortisone? I'm worried about side effects.

Dr. Esraa:
I appreciate your worries but when the abdominal pain is severe, we may consider corticosteroids, and short-term use is generally safe and helps reduce inflammation quickly.

Mrs. Nagwa:
How long will she need to stay?

Dr. Esraa:
Usually, the hospital stay is short — a few days — depending on her symptoms and pain control. But Mrs Nagwa When you go home, please return immediately if you notice:

- Reduced urine
- Swelling of the face or legs
- Blood in the urine
- Severe abdominal pain
- Persistent vomiting
- Severe headache
- High blood pressure

Mrs. Nagwa:
Thank you doctor. I feel more reassured now.

Dr. Esraa:
You're welcome. We will monitor Hana closely and support you throughout.

IMP key points:

1. Presentation

- Non-blanching purpuric rash on legs/buttocks
- Severe abdominal pain
- ± Joint pain
- Blood pressure usually normal

2. Pathophysiology

- Small vessel vasculitis (inflammation of small blood vessels)
- Often follows infection or immune overreaction
- Sometimes no clear trigger
- Rash appears due to leakage from inflamed vessels

3. Diagnosis

- Primarily **clinical**: typical rash, abdominal pain, age group, distribution
- Blood tests (CBC, coagulation) usually normal
- Urine tests important to monitor for kidney involvement

4. Management

- **Mild cases:** pain relief, hydration, observation
- **Severe abdominal pain:** consider corticosteroids
- **Kidney involvement:** urine monitoring, BP monitoring, possible nephrology referral

5. Advice to Caregivers

Seek immediate medical attention if:

- Reduced urine output
- Swelling of face or legs
- Blood in urine
- Severe abdominal pain
- Persistent vomiting
- Severe headache
- High blood pressure

6. Prognosis

- Most recover completely
- Relapses can occur
- Small percentage develop long-term kidney issues
- Outcome depends mainly on kidney involvement

7. Follow-Up

- Urine monitoring until protein-free
- BP monitoring for 6 months
- Regular pediatric follow-up appointments

Bicytopenia

Background information:
Ali is a 4-year-old boy who presented with pallor and frequent unexplained fever. He was initially seen by the GP and prescribed iron for anemia. Today, he presented again with new symptoms including swelling of his tummy and bruises. On assessment in hospital, his blood tests showed Hb 5, platelets 10 and WBCs 13,000. On examination, he was found to have hepatosplenomegaly, bruises and petechiae.

Task:
You are the ST3 doctor explain the diagnosis and management plan to his mother Mrs Fatma and answer all her concerns.

Role:
Dr. Ramy ST3 paediatric registrar.

Dr Ramy:
Hello Mrs Fatma, I'm Dr Ramy, one of the doctors looking after Ali today. I know this is a worrying time for you. Before we talk about the results, can you tell me what do you know so far about his condition?

Mrs Fatma:
Nothing dr, when I noticed Ali looking unwell and pale, I went to the GP. He prescribed iron, but Ali is still not doing well. Today he has bruises. I asked him and he denied any trauma. Also, his tummy is swollen. I don't know what is going on.

Dr Ramy:
Thank you for explaining that, and I can understand why you're worried, now I'll explain every thing to you. After examining Ali and doing some tests, we found he has something called **Bicytopenia**. I will explain what that means in a simple way.

Our blood is formed of three main components:

- Red blood cells, which carry oxygen to the body
- White blood cells, which fight infection
- Platelets, which protect against bleeding

The problem here is that Ali has **low hemoglobin** and **low platelets**. So two types of blood cells are low, and when two cell lines are affected, we call this **bicytopenia**.

Mrs Fatma:
What causes this?

Dr Ramy:
When we see two cell lines affected, we need to check the **blood factory**, which is called the **bone marrow**.
Inside the body there is a spongy tissue called bone marrow that makes all blood cells. When blood cells are low like this, it means the process of making them is not working properly.

This can happen due to:

- Certain medications
- Infections
- Build-up diseases in the bone marrow
- And I'm sorry to say, sometimes it can be due to cancer

At the moment, we do not know the exact cause yet, so we need to investigate further.

Mrs Fatma:
OMG. What did you find in Ali to think about this?

Dr Ramy:
I'm really sorry Mrs Fatma I know how hard is it to listen to something like that we found that Ali has:

- Anaemia
- A tendency to bleed easily due to low platelets
- Enlarged organs in his tummy, which are the **liver and spleen**

This happens when the bone marrow is not working properly, and the body tries to compensate. This tells us his body is under stress, and we need to find the reason. But I want to reassure you that early diagnosis always carries better outcomes.

Mrs Fatma:
oh he still has anaemia, does he need more iron?

Dr Ramy:
This is **not anemia due to iron deficiency**, so iron is not needed now. Iron deficiency can lower haemoglobin, but Ali's condition suggests another cause that we must investigate.

Mrs Fatma:
What will happen now?

Dr Ramy:
Our plan is to **admit Ali to the hospital** to find the cause safely and quickly.
We will:

- Take your permission to do something called **bone marrow biopsy** using a small needle to examine the blood factory

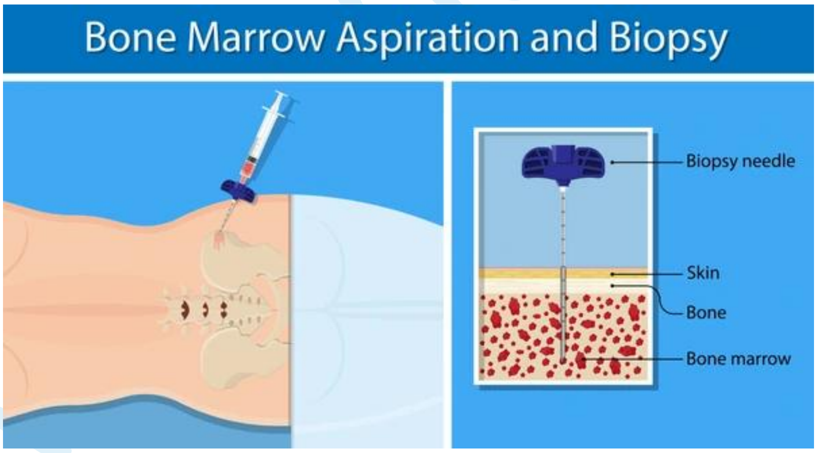
- Correct the low blood counts with **blood transfusion** and **platelet transfusion** if needed
- Check his blood for any infection

Mrs Fatma:
What is this bone marrow biopsy?

Dr Ramy:
A bone marrow biopsy involves removing small samples of bone marrow from the back of the pelvic bone for testing. Bone marrow is the spongy tissue inside our bones which produces our red blood cells, white blood cells and platelets . The samples will then be taken to a laboratory, where they will be looked at under a microscope and analysed.

Mrs Fatma:
How its done?

Dr Ramy:
We will ask him to lie on his side on a bed with his knees bent up to his chest. We will then put numbness cream on the area around the back of his pelvic bone (where we will take the sample of bone marrow from) Once the area is numb, we will insert a needle into the pelvic bone to suck out a sample of the bone marrow. We will finish the procedure by placing a sterile dressing over the biopsy site. He should not need any stitches. The procedure will take approximately 15 to 30 minutes.



Mrs Fatma:
Are there any side effects?

Dr Ramy:
A bone marrow biopsy is a safe procedure with few risks. However, as with all medical procedures, there are some possible side effects. These can include mild back or leg pain for one to two days after the procedure, but we can give some pain relief, such as paracetamol to help with this.

There is a small risk that he may experience bleeding from the biopsy puncture site. But we know how to deal with that and prevent it from happening.

Mrs Fatma:
Will he grow out of this condition?

Dr Ramy:
It depends on the cause, but the good news is that **many of these causes are treatable**, and we will support you and Ali every step of the way.

Mrs Fatma:
What should I do when he goes home?

Dr Ramy:
If he is discharged, we will advise:

- Avoid contact sports
- Minimize activity
- Avoid contact with people who are unwell to reduce infection risk

Dr Ramy:
I know this is a lot to take in. Please feel free to ask me anything at any time — we are here to support you and Ali.

Key notes.

- Differential causes of bicytopenia include:
  - Medication effects
  - Infections
  - Bone marrow disorders or infiltrative diseases
  - Malignancy
- Clinical findings supporting bone marrow dysfunction:
  - Persistent anaemia
  - Easy bruising due to thrombocytopenia
  - Hepatosplenomegaly (enlarged liver and spleen), suggesting physiological compensation and systemic stress
- If the anaemia is **not due to iron deficiency**; therefore, iron supplementation is no longer indicated.
- Planned management:
  - Hospital admission for urgent diagnostic work-up
  - **Bone marrow biopsy** to determine the underlying cause
  - Blood and platelet transfusions as clinically required
  - Laboratory screening for infection
- Bone marrow biopsy details:
  - Performed using a needle inserted into the posterior pelvic bone
  - Duration approximately 15–30 minutes
  - Local anaesthesia used; no sutures typically required
  - Potential minor complications include temporary pain and a small risk of bleeding

- Prognosis:
  - Dependent on the underlying diagnosis
  - Many potential causes are treatable
  - Early diagnosis is associated with improved outcomes
- Discharge advice (if applicable):
  - Avoid contact sports and strenuous activity
  - Minimise exposure to individuals with infections
- Ongoing reassurance and support were provided throughout the consultation.

Febrile neutropenia

Background information:
Ali previously diagnosed with ALL and on chemotherapy, he received the dose 3 days ago. Since then, he developed fever 38.5 and the mother gave paracetamol. The health visitor today found the child sick when she measured the temperature found 35.4, she asked the mother to go directly to the hospital. When the child arrived and bloods was done they found the WBCs 1000, neutrophil count was 300.

Task:
You are the ST3 doctor explain the diagnosis and management plan to his mother Mrs Eman and answer all her concerns.

Role:
Dr. Hassan ST3 paediatric registrar.

Dr Hassan:
Good morning, Mrs Eman I'm dr Hassan. I'm here today to discuss with you about Ali's condition. But before we start would you tell me what you know about him.

Mrs Eman:
I don't know Dr. He has temperature I thought it's a common cold and gave him paracetamol, but when the health visitor came, she asked me to go to the hospital I don't know why?

Dr Hassan:
I know Mrs Eman it looks strange that she asked you to go to the hospital for just fever but as I know Ali has leukaemia and he is on chemotherapy so when he got any fever he should be investigated. Now after investigation we found that he has some thing called ***febrile neutropenia*** have you heard about it before?

Mrs Eman:
No Dr what is this?

Dr Hassan:
let me explain it in simple way, Our blood is made up of three main types of cells:

- Red blood cells, which carry oxygen
- Platelets, which help stop bleeding
- White blood cells, which fight infection

One important type of white blood cell is called **neutrophils**, and their main job is to fight bacteria and infections.

Normally, the white blood cell count is between **4,000 and 11,000**, but your child's count is lower than normal it's around 1000

And specifically, the neutrophils are very low when the neutrophil level drops very low—especially below **500**—we call this **neutropenia**.

When a child with neutropenia develops a fever, we call this **febrile neutropenia**, and it is considered a **medical emergency**.

Mrs Eman:
What does that mean for my child?

Dr Hassan:
It means that your child's body currently has **very little defence against infection**.

Even a mild infection, like a common cold, can become serious very quickly because the body cannot fight it properly.

That's why in the future, if your child develops **any temperature or signs of illness like Fever or high temperature, Chills or shivering, Sore throat, burning when passing urine, Skin changes or lesions, diarrhoea, or if your child simply looks unwell**

you must:

- ***Don't give paracetamol.***
- ***Call emergency 999 and come to the hospital immediately as we should start antibiotics within 1 hr from onset of fever.***

Mrs Eman:
What is the main reason for having this?

Dr Hassan:

That's a very important question. There are a few common reasons that cause suppression to the factory that form the WBCs and neutrophils which is called the bone marrow like:

- **Chemotherapy** despite chemotherapy is very important to kill the tumour cells but it can have consequences like inhibiting the defence system, decline the WBCs numbers.
- **Viral or bacterial infections** that suppress the bone marrow

- **Blood or bone marrow conditions**

Mrs Eman:
Can I give antibiotic for my son and go home now?

Dr Hassan:
I completely understand why you'd want to take him home, but in this situation, it wouldn't be safe to do that.

Because your child has **febrile neutropenia**, his body currently has very little ability to fight infection. Even a mild infection can become serious very quickly.

He needs:

- **Immediate antibiotics given through blood conduit** — these are much stronger and work faster than oral antibiotics
- **Close monitoring in hospital** in case his condition changes
- **Tests** to identify the source of infection

Oral antibiotics at home would not be enough to protect him at this stage.

Mrs Eman:
What is the management?

Dr Hassan:
we will admit Ali urgently

- Start treatment **within 1 hour**
- Do full clinical examination
- Check his vital signs (temperature, heart rate, blood pressure, oxygen saturation)
- Assess for source of infection

- We will do
  Blood cultures (before antibiotics if possible) and other test to detect the type of microbe.
  Start **antibiotics immediately via blood conduit.**

- When we get the results of the culture we will adjust antibiotics based on culture results
- We will Continue until:
  - Child is clinically well
  - Neutrophil count recovers

Mrs Eman:
when will you discharge him?

Dr Hassan:

I wish I could give you exact time, but the discharge depend on the response to the antibiotics, and the type of microbe; some microbes require 7 days of antibiotics some require up to 21 days.
So, we will do certain test called culture in which we take blood sample and put in specific media to allow microbe growth to detect type of microbe caused the infection.
We will start now with preliminary antibiotic which is commonly used till we receive the culture results.
We will keep you updated as we know how desperately you need to know when your child will be ok and discharged

Mrs Eman:

So what is the outlook of this condition? can it progress?

Dr Hassan:

The outlook is generally **good if we treat it early**, which is exactly what we are doing now.

However, because your child's body currently has **very low ability to fight infection**, the condition **can progress quickly if not treated**. A simple infection can spread and become more serious, lead to fulminant infection sometimes leading to a widespread infection in the body up to shock status as the child has poor immune system.

That's why we treat this as an emergency and start treatment straight away.

Pass/ fail criteria:

- explain febrile neutropenia.
- Don't give paracetamol
- once he got temperature call 999 and run to the hospital
- explain consequences its life-threatening condition
- importance of time management: from temperature start to start antibiotics should be less than 1 hr.
- time count a lot otherwise it could disseminate all over his body or lead to fulminant infection leading to shock status as the child has poor immune system.

Thalassemia

Background information:

You are an ST4 paediatric registrar in a paediatric clinic. Nadia is a 17-year-old girl with thalassemia major, diagnosed at 6 months of age. She has been receiving regular blood transfusions and is on oral iron chelating therapy. Nadia has requested to speak with you privately as she has concerns about how thalassemia might affect her puberty and future fertility. She is worried about how her condition might impact her life as she enters adulthood.

Task:

Your task is to explain to Nadia the potential effects of thalassemia on puberty and fertility, reassure her, and address any other concerns she might have. It's important to provide information in a sensitive and age-appropriate manner, considering her emotional and psychological needs.

Role:

Dr. Ramy ST4 paediatric registrar.

Dr Ramy:

Good morning, Nadia. thanks for coming today, I'm here to answer all your questions regarding your condition.

Nadia:

Thank you dr, you know I have thalassemia since I was 6 months old, since this time I'm suffering from frequent blood transfusions. Now as I've entered my adolescent period I'm worried about many things. First of all can I know why I have this blood disease is it a fault of my parents?

Dr Ramy:

I'm really glad you asked that, Nadia. I want to reassure you that this is not anyone's fault. Thalassemia is a genetic condition, which means it is inherited. It happens when both parents carry a gene for the condition, even if they are completely healthy themselves. So your parents did not do anything wrong—this is something that happens naturally and cannot be controlled.

Nadia:

How thalassemia can affect me in general and specially how it can affect my fertility?

Dr Ramy:

That's a very important question. Thalassemia, if not well managed, can lead to iron overload due to repeated blood transfusions. This excess iron can deposit in different organs, including the glands responsible for hormones and fertility.

Also, low hemoglobin levels can affect oxygen delivery to the body, including the reproductive organs.

However, with good management—meaning regular transfusions and taking your iron chelation therapy as prescribed—we can control iron levels and protect these organs. This means your fertility can be preserved, and many patients go on to have normal puberty and even successful pregnancies.

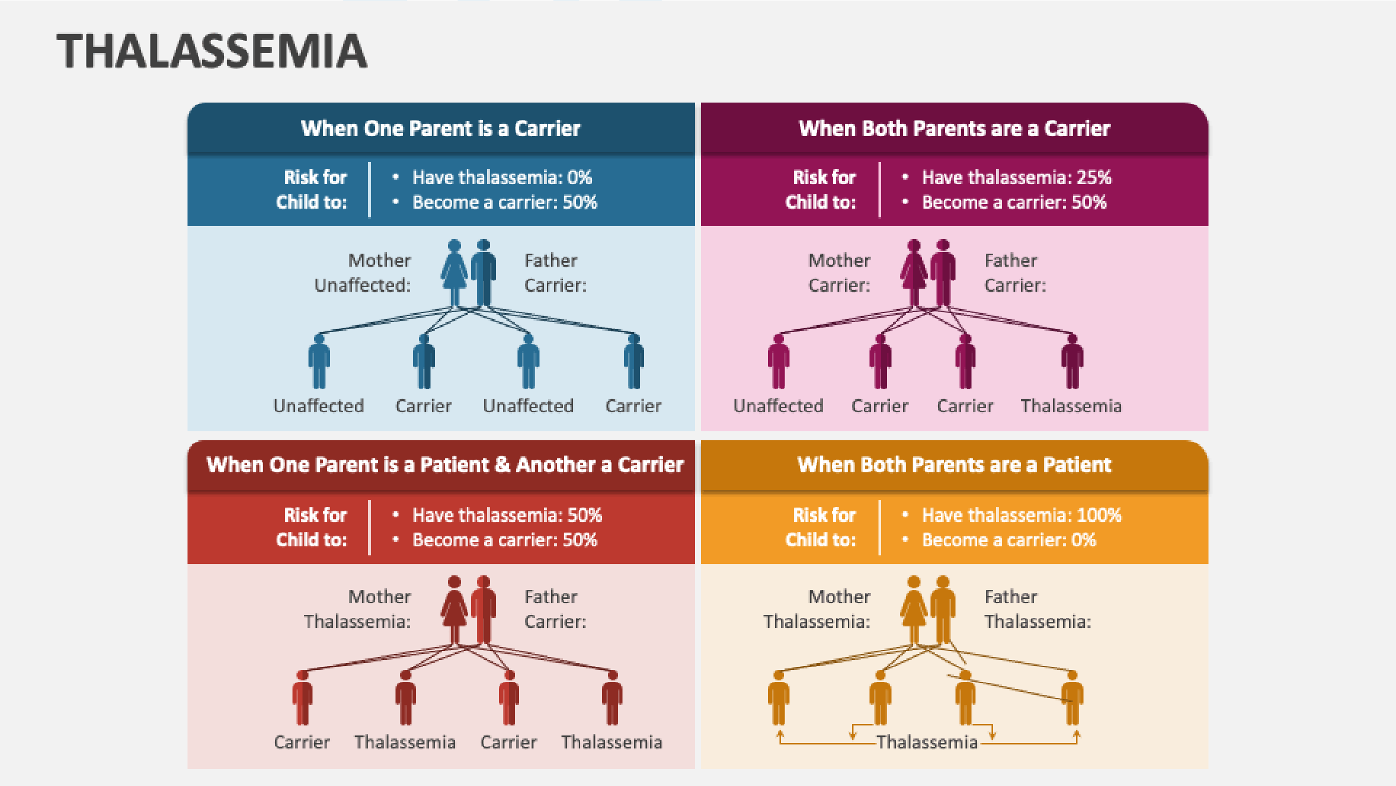
Nadia:
Will all my children have the disease?

Dr Ramy:

As you have thalassemia you have three possibilities based on your husband.

- If your **husband totally free** from thalassemia, the good news that at this time all your **children won't have the disease**, but they will be carriers which mean carry the condition but don't present it.
- The other possibility if your **husband is a carrier** of the disease at this time he has one faulty gene and one healthy, but the healthy gene compensate this faulty one so at that time **half of your children could have thalassemia**.
- The third possibility is that if your **husband has the same condition** I'm sorry to tell you **all your children will have thalassemia** as the possibility is 100%.

So in summary it depends on your husband that's why for any thalassemia patient we advise for premarital gene counselling.


THALASSEMIA
When One Parent is a Carrier
Risk for Child to:
• Have thalassemia: 0%
• Become a carrier: 50%
Mother Unaffected:
Father Carrier:
Unaffected
Carrier
Unaffected
Carrier
When Both Parents are a Carrier
Risk for Child to:
• Have thalassemia: 25%
• Become a carrier: 50%
Mother Carrier:
Father Carrier:
Unaffected
Carrier
Carrier
Thalassemia
When One Parent is a Patient & Another a Carrier
Risk for Child to:
• Have thalassemia: 50%
• Become a carrier: 50%
Mother Thalassemia:
Father Carrier:
Carrier
Thalassemia
Carrier
Thalassemia
When Both Parents are a Patient
Risk for Child to:
• Have thalassemia: 100%
• Become a carrier: 0%
Mother Thalassemia:
Father Thalassemia:
Thalassemia

Nadia:
Is there any concern about my skin, hair and nails because I feel its abnormal is it related to thalassemia?

Dr Ramy:

I understand your concern, Nadia. These changes can happen due to iron overload or sometimes as a side effect of iron chelation therapy. Chronic anemia can also contribute to hair dryness or hair fall.

The best way to improve this is by staying consistent with your treatment, as good control of your condition helps maintain healthy skin and hair.

Nadia:
Can I participate normally in all school activity or there should be some limitation?

Dr Ramy:

Yes, of course. You can take part in school and most activities. You can also do sports, but it's important to avoid very strenuous exercise, as it can put extra stress on your heart. Otherwise, you should live as normally as possible.

Nadia:
Can I prevent having kids with thalassemia in the future?

Dr Ramy:

Yes, there are options available. Premarital genetic counseling is very important. In addition, techniques like IVF invitro fertilization can help select healthy embryos. During pregnancy, tests can also check the baby early on like checking the foetal DNA.

With advances in medicine, there are many ways to help you have healthy children.

Nadia:
Is there is special job I should be restricted from as I have thalassemia?

Dr Ramy:

Don't take it as restriction because under the low there is no discrimination for any person because of his health condition. But sometimes if this job can cause some hazards on the general condition of the person or his life at this time, they will ask the person to choose another job, because of the welfare of the person himself. Like the jobs that require high physical activity, the jobs that require long hours and physical exertion or high temperature, even some jobs like fire fighting that include exposure to fumes or gases, military soldiers as they work in difficult climate, this is not a restriction its considered as a precaution to prevent hazards.

Nadia:
Shall I grow out of thalassemia?

Dr Ramy:

Now with advances with medicine they can do an operation called bone marrow transplantation, some patients choose to do it if they found compatible donor it can help them grow out of it. Otherwise, thalassemia is a long-life condition. However, with good compliance to medications and transfusion many people can led normal life.

Nadia:
Do you recommend following any special diet?

Dr Ramy:

No specific regimen is required you just need to decrease consuming foods that's rich in iron and continue using your iron chelating medications.

Nadia, I know this is a lot to think about, but you're doing really well managing your condition. You're not alone in this—we are here to support you physically and emotionally every step of the way.

Nadia:

Thank you, doctor. I feel much better now.

Most important points:

Cause

- Thalassemia is a **genetic condition**
- It happens when **both parents carry a gene for the condition**
- **Parents did not do anything wrong**

🩸 General Effects

- **Frequent blood transfusions**
- Can lead to **iron overload**
- Iron deposits in **different organs including glands responsible for hormones and fertility**
- **Low hemoglobin** affects oxygen delivery

🌸 Puberty & Fertility

- Iron overload affects **hormones and fertility**
- With **good management (transfusions + chelation)**:
    - Control iron levels
    - Protect organs
    - **Fertility can be preserved**
    - Many patients have **normal puberty and successful pregnancies**

👶 Children Risk

- Depends on husband:
  - **Husband free:** all children **carriers**, no disease
  - **Husband carrier: half of children could have thalassemia**
  - **Husband affected: 100% of children will have thalassemia**
- **Premarital genetic counselling is advised**

🧪 Prevention

- **Premarital genetic counselling**
- **IVF** to select healthy embryos
- **Foetal DNA testing during pregnancy**

💇‍♀️ Skin, Hair, Nails

- Due to:
  - **Iron overload**
  - **Chelation therapy**
  - **Chronic anemia**
- Improves with **good control of condition**

🏫 Activities

- Can take part in **school and most activities**
- Can do sports
- Avoid **very strenuous exercise**

💼 Jobs

- **No discrimination by law**
- Avoid:
  - High physical activity
  - Long hours and exertion
  - High temperature
  - Fumes/gases (e.g. fire fighting, military)
- Considered **precaution, not restriction**

🔄 Course of Disease

- **Lifelong condition**
- **Bone marrow transplantation** may help if donor available
- With good compliance → **normal life**

🥗 Diet

- **No specific regimen required**
- Decrease **iron-rich foods**
- Continue **iron chelation medications**

💭 Reassurance

- **You’re not alone**
- Condition can be **well managed**
- Support available **physically and emotionally**

Medical statistics most important notes

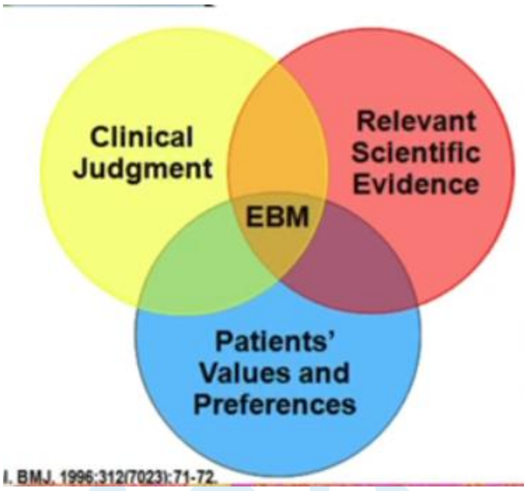
Environmental and Social Risk Factors
Factor affecting disease
Relative Odds = 1.94
Relative Odds = (159 x 167) / (333 x 41) = 26553 / 13653 = 1.94
dreamstime

DR.

Evidence-Based Medicine

Introduction & Definition

- **What is EBM?** It is the intersection of:
    - Clinical Judgment (Experience)
    - Relevant Scientific Evidence (Findings)
    - Patients' Values and Preferences (Wishes)


Clinical Judgment
Relevant Scientific Evidence
EBM
Patients' Values and Preferences

I. BMJ. 1996:312(7023):71-72.

- **Official Definition:** Evidence-based medicine could be defined as the science of integrating the best available evidence from clinical research with physicians' experience and patients' unique values and preferences.

Benefits of EBM

1. **Improved Patient Outcomes:** Using the best available evidence allows for more informed decisions leading to better health outcomes.
2. **Consistent Care:** EBM promotes standardized care practices, reducing variability in treatment.
3. **Cost-Effective:** Helps in utilizing resources efficiently, avoiding unnecessary tests and treatments.
4. **Enhanced Learning:** Encourages continuous learning and staying updated with the latest research.

Limitations & Grading Evidence

Is EBM for granted? There are some limitations:

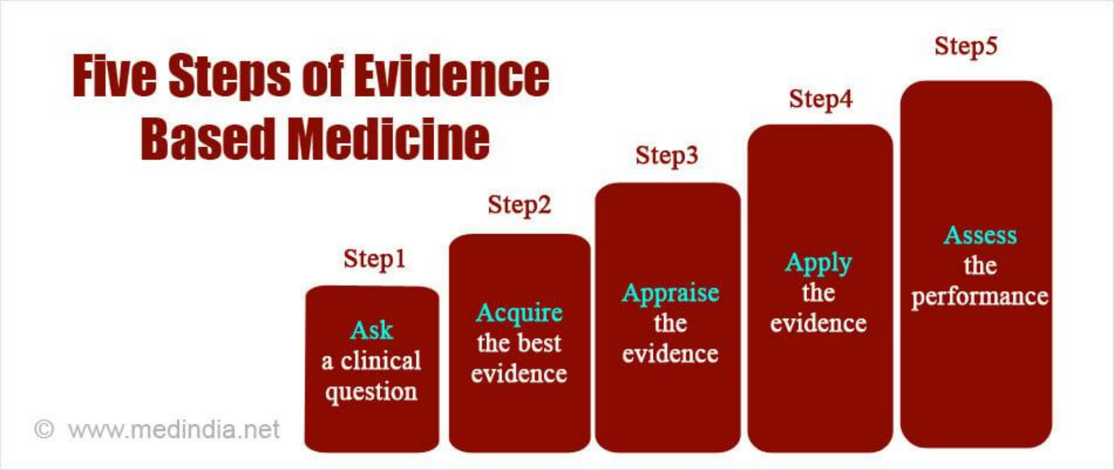
1. **Availability of Evidence:** Not all clinical questions have high-quality evidence available.
2. **Time-Consuming:** Searching for and appraising evidence can be time-consuming.
3. **Patient Variability:** Research studies often focus on average outcomes, which might not always apply to individual patients.
4. **Implementation Challenges:** Integrating EBM into clinical practice requires changes in workflow and culture, which can be difficult.

Common Grading Systems:

- **Level 1:** High-quality evidence from Randomized Controlled Trials (RCTs) or meta-analyses of RCTs.
- **Level 2:** Evidence from well-designed cohort or case-control studies.
- **Level 3:** Evidence from uncontrolled studies or expert opinion.

The "5As" and PICO Framework

Practicing EBM involves several steps (The 5As)


Five Steps of Evidence Based Medicine
Step1
Ask a clinical question
Step2
Acquire the best evidence
Step3
Appraise the evidence
Step4
Apply the evidence
Step5
Assess the performance
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1. **Ask:** Formulate a clear, answerable clinical question.
2. **Acquire:** Search for the best available evidence.
3. **Appraise:** Critically evaluate the evidence for its validity and relevance.
4. **Apply:** Integrate the evidence with clinical expertise and patient preferences.
5. **Assess:** Evaluate the outcomes and seek ways to improve.

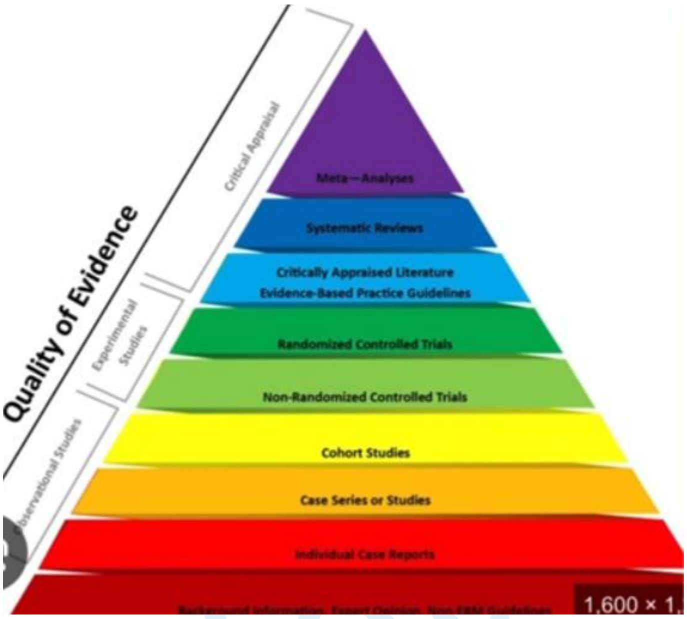
PICO Framework for clinical questions:

- **P (Population):** Describes a particular group of patients (e.g., Cardiac arrest patients).
- **I (Intervention):** Includes main intervention, prognostic factor, or exposure (e.g., Who received CPR).
- **C (Comparator):** Describes the main alternative (e.g., Compared with no CPR).
- **O (Outcome):** What is being accomplished, improved, or measured (e.g., Survival to discharge).

The pyramid of evidence quality

(from highest to lowest):

1. Systematic Reviews and Meta-Analyses.
2. Randomized Controlled Trials (RCTs).
3. Cohort Studies.
4. Case-Control Studies.
5. Case Series and Case Reports.
6. Expert Opinion.


Quality of Evidence
Critical Appraisal
Experimental Studies
Observational Studies
Meta—Analyses
Systematic Reviews
Critically Appraised Literature
Evidence-Based Practice Guidelines
Randomized Controlled Trials
Non-Randomized Controlled Trials
Cohort Studies
Case Series or Studies
Individual Case Reports
Background information, Expert Opinion, Non-EBM Guidelines
1,600 × 1,

Practical Application

How can I start incorporating EBM into my practice?

- Start with formulating good clinical questions when you encounter a patient problem.
- Use databases like PubMed or Cochrane Library to find relevant studies.
- Practice critical appraisal skills to evaluate the quality of the evidence.
- Always consider the patient's values and preferences when applying the evidence.

Clinical Audit

Definitions & Basics

- **What is Clinical Audit?**
  A clinical audit is a systematic review of care against explicit criteria or standards to ensure that what should be done is being done. It aims to improve patient care and outcomes through systematic review and changes in practice.

- **Who is the Audit Team?**
  A successful audit team typically includes:
  1. **Clinicians:** (doctors, nurses, allied health professionals), and stakeholders.
  2. **Administrative staff.**
  3. **Audit facilitator or coordinator.**

The Audit Process

- **Audit Phases:**
  1. **Preparation and Planning:** Identify the topic and standards.
  2. **Measuring Performance:** Collect and analyze data.
  3. **Implementing Changes:** Develop and implement action plans.
  4. **Re-auditing:** Measure performance again to ensure improvements.

- **Audit Project Steps:**
    - Choose a topic based on clinical importance, high volume, or problem areas.
    - Set criteria and standards.
    - Collect data on current practice.
    - Analyze data and compare against standards.
    - Implement changes.
    - Re-audit to check for improvement.

Benefits & Limitations

- **Benefits:**
    - Improved patient care and outcomes.
    - Enhanced clinical practice.
    - Identification of training needs.
    - Encouragement of a culture of continuous improvement.

- **Cons and Limitations:**
    - Time-consuming and resource-intensive.
    - Potential resistance to change.
    - May require additional training and financial/organizational support.

Comparisons & Objectives

- **Audit vs. Research:**
  An audit measures current practice against standards to improve quality, whereas research aims to generate new knowledge.
  Audits focus on implementing change; research tests hypotheses.

- **Audit vs. Quality:**
  Audit is a part of quality improvement. Quality improvement is a continuous process, whereas an audit has a limited timeframe.

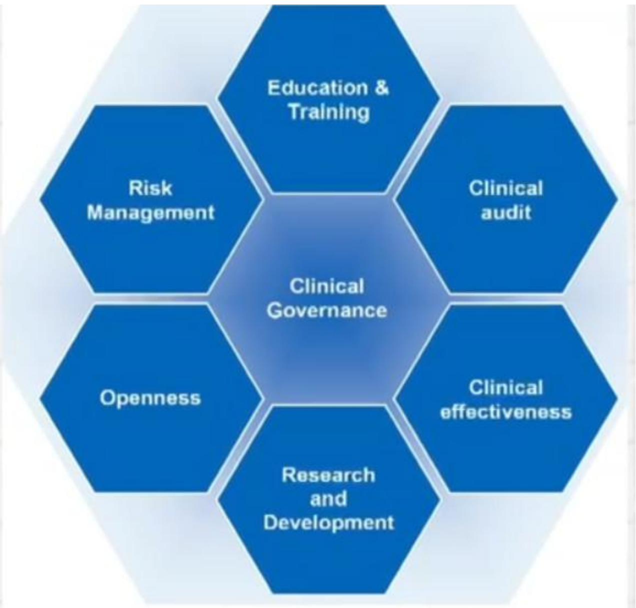
- **Audit Objectives (SMART):**
    - **S**pecific: Clearly defined.
    - **M**easurable: Quantifiable.
    - **A**chievable: Realistic.
    - **R**elevant: Important to the practice.
    - **T**ime-bound: Within a set timeframe.

- **Timing of an Audit:**
    - Regular intervals (Annual/Biannual).
    - Triggered by specific events or concerns.
    - Post-intervention to measure impact.

Clinical Governance

- **Clinical Governance:**
  A framework through which NHS organizations are accountable for continually improving the quality of their services and safeguarding high standards of care.

- **Domains of Clinical Governance:**
  - Education & Training
  - Clinical Audit
  - Clinical Effectiveness
  - Research & Development
  - Openness
  - Risk Management

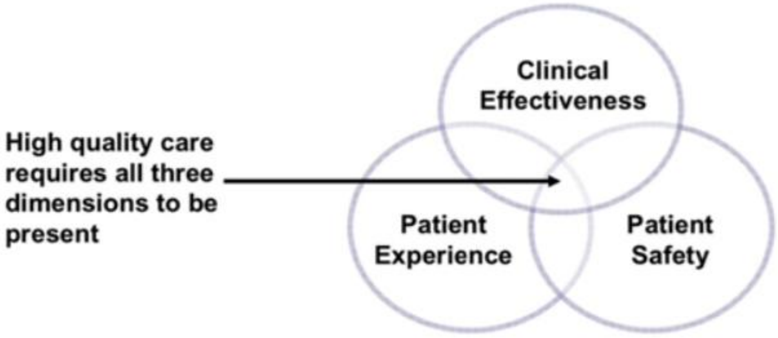

Education & Training
Risk Management
Clinical audit
Clinical Governance
Openness
Clinical effectiveness
Research and Development

Risk Management:
Focuses on what happens if things go wrong,
including risks to:
staff
the organization
the patient.

Quality

- **Definition of Quality:** High-quality care requires three dimensions:
  1. Clinical Effectiveness
  2. Patient Safety
  3. Patient Experience

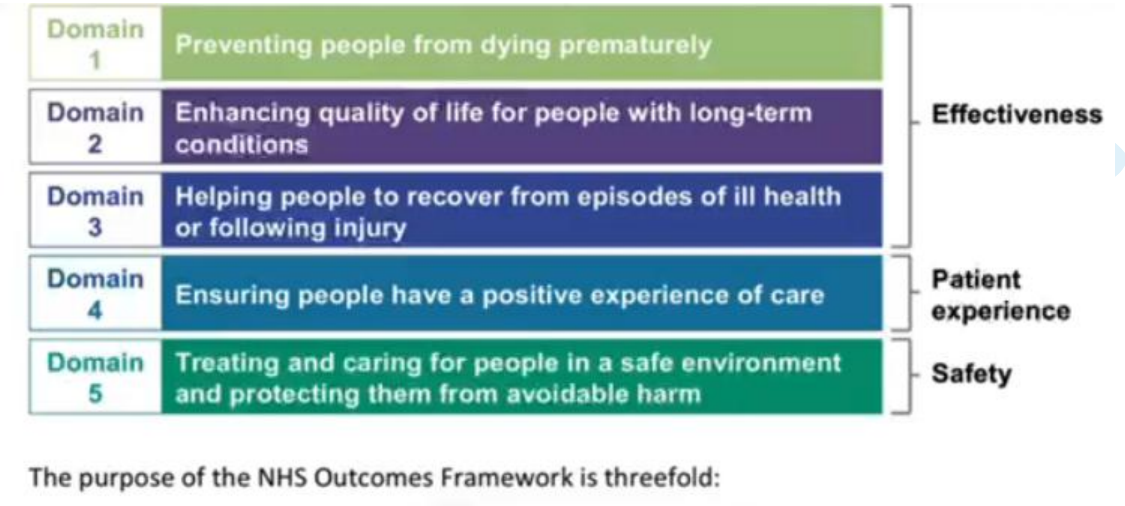
FIGURE 1: Definition of quality


Clinical Effectiveness
High quality care requires all three dimensions to be present
Patient Experience
Patient Safety

Dr. Ghada

- **Quality Means (The 5 Domains):**

1. Preventing premature death.
2. Enhancing quality of life for long-term conditions.
3. Helping recovery from illness/injury.
4. Ensuring a positive patient experience.
5. Treating/caring in a safe environment.



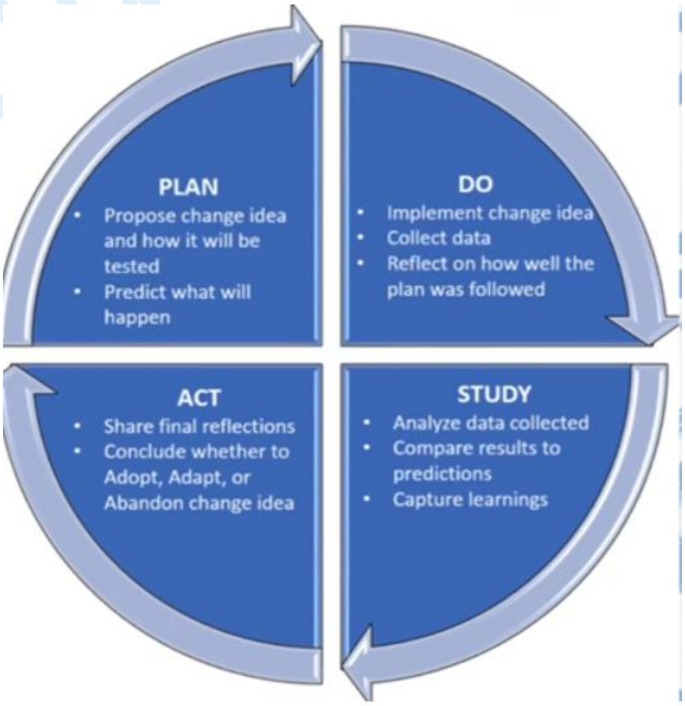
Domain 1	Preventing people from dying prematurely	Effectiveness
Domain 2	Enhancing quality of life for people with long-term conditions	
Domain 3	Helping people to recover from episodes of ill health or following injury	
Domain 4	Ensuring people have a positive experience of care	Patient experience
Domain 5	Treating and caring for people in a safe environment and protecting them from avoidable harm	Safety

The purpose of the NHS Outcomes Framework is threefold:

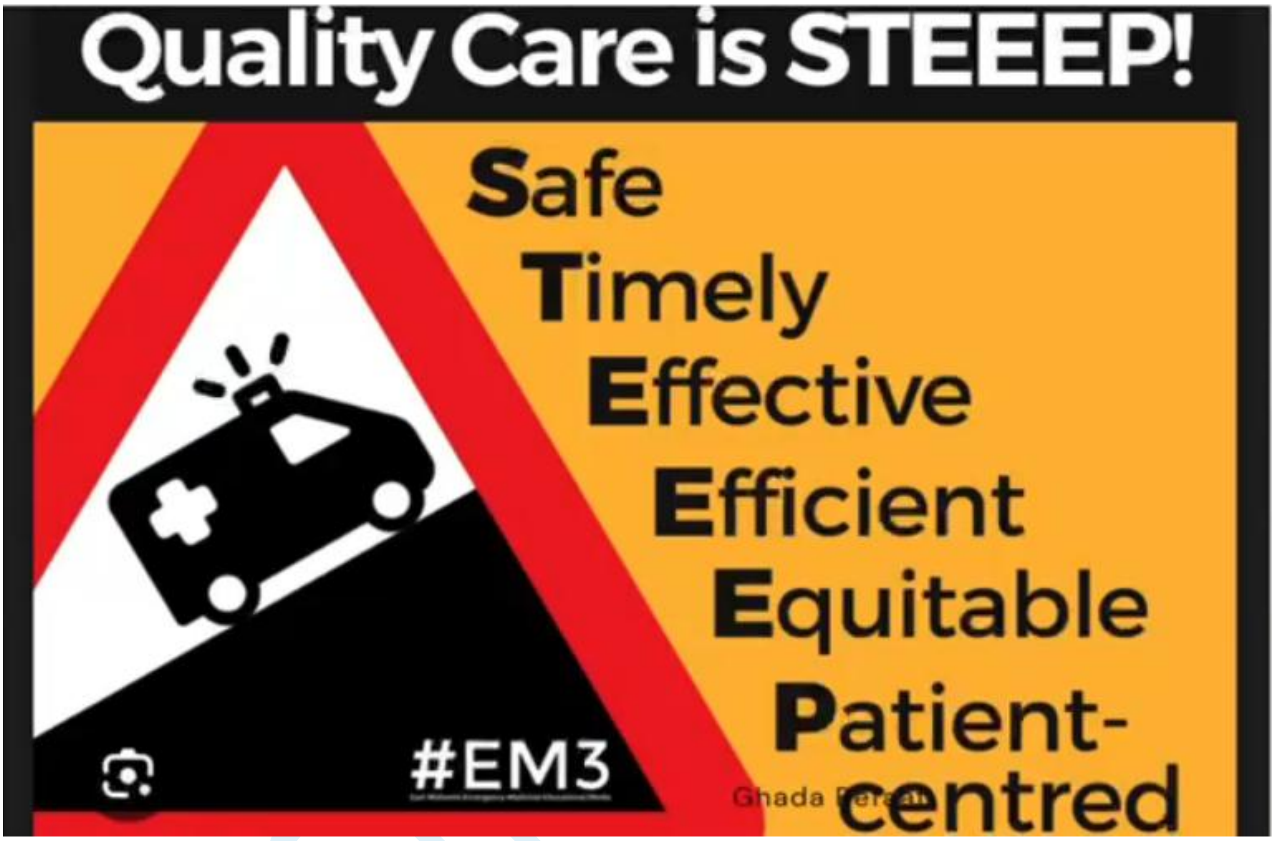
DR. Ghada

Methodologies

- **PDSA Cycle:** Plan, Do, Study, Act.


PLAN
• Propose change idea and how it will be tested
• Predict what will happen
DO
• Implement change idea
• Collect data
• Reflect on how well the plan was followed
ACT
• Share final reflections
• Conclude whether to Adopt, Adapt, or Abandon change idea
STUDY
• Analyze data collected
• Compare results to predictions
• Capture learnings

- **STEEEP Framework (Quality Care):**
    - **S**afe
    - **T**imely
    - **E**ffective
    - **E**fficient
    - **E**quitable
    - **P**atient-centered


Quality Care is STEEEP!
Safe
Timely
Effective
Efficient
Equitable
Patient-centred
#EM3
Ghada

DR. GH

Sources

NHS Website

Comprehensive patient information and clinical resources used widely across the UK healthcare system.

NICE Guidelines

Evidence-based clinical guidelines that inform best practice and standardised care.

Patient Information Resources (NHS)

Accessible and reliable materials designed to support patients and families.

KidsHealth

Trusted paediatric health education platform providing clear and practical information.